

Commerce

# SOUTHERN TEXTILE BULLETIN

VOL. 28

CHARLOTTE, N. C., THURSDAY, APRIL 30, 1925

NUMBER 9

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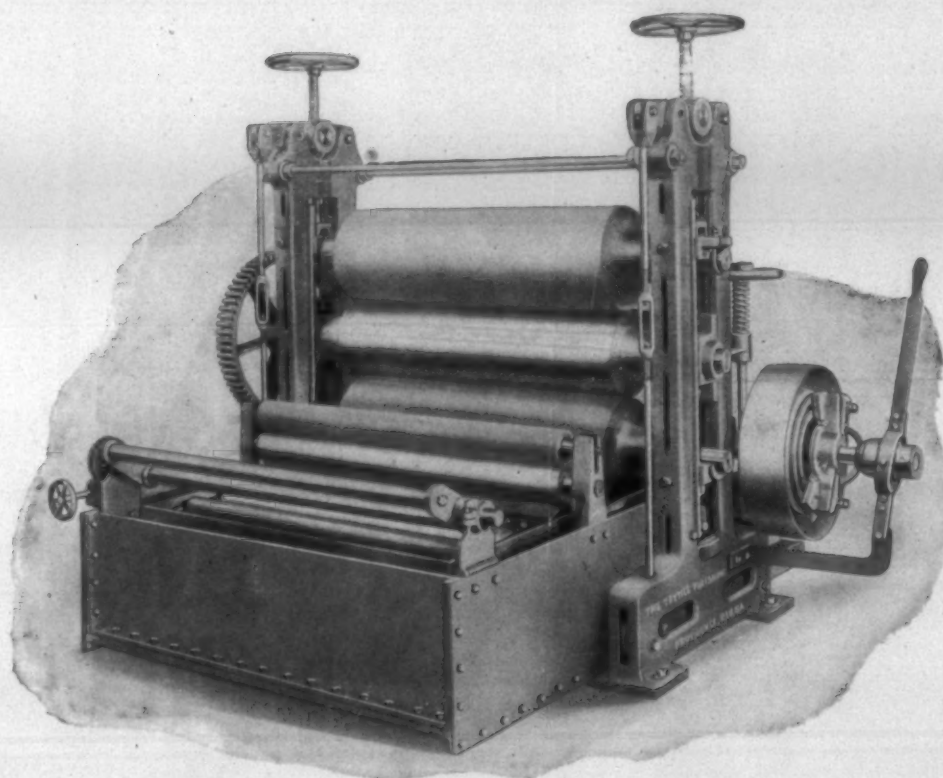
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Federal Tax .....	\$6,638,898.68
Pennsylvania State Inheritance Tax .....	3,167,197.87
Other Inheritance Taxes .....	1,546,565.49
Total .....	\$11,352,662.04

Bequests left charities by the H. C. Frick estate were estimated to be worth about \$500,000 per share. Five years after his death—with federal and STATE INHERITANCE taxes paid, these shares are worth only about \$200,000 each and none of them has been paid!

If the H. C. Frick estate had been in Alabama and the testator had been a resident of Alabama, his state inheritance tax would have been **NOTHING!**

## ALABAMA HAS NEITHER INHERITANCE NOR INCOME TAX

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For further information on tax laws in Alabama, write Commercial Department, Alabama Power Company, Birmingham, Ala.



ALABAMA POWER COMPANY

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spool heads	shuttles
loom picks	flier disks
swift braces	shuttle box liners
thrust washers	lacing combs
spindle guards	picker stick ends

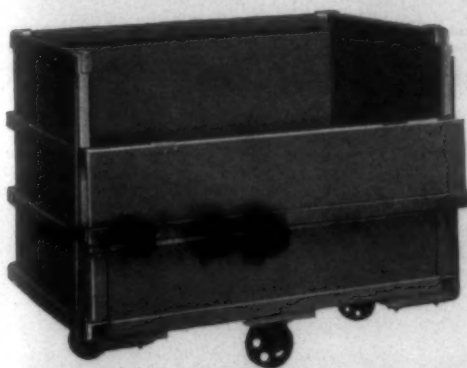
You will be interested in our new booklet "Diamond Fibre Receptacles." It contains descriptions and specifications of all standard sizes of these smooth receptacles and special parts.

Write for this booklet today.



## Diamond Fibre Gill Can

Used extensively in the Woolen Industry. The inside of the can is treated with water-proof shellac, while the outside of the can is painted with a high-quality varnish. The can is made with a smooth inside finish, eliminating danger of the wool fibres catching on rough and projecting spots as they are fed into the machine.



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# SOUTHERN TEXTILE BULLETIN

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## *Problems in Dyeing, Bleaching and Finishing*

IN April this year I had the honor of giving a lecture to your Association dealing with "Stains and Faults in Grey Cloth which cause Damage when Bleached, Dyed Printed and Finished."

From the discussion which followed it appeared that some of your members felt that a lecture showing damages which were not due to faults in spinning and manufacturing would be of considerable interest, and at the request of your Secretary I undertook to give you such a lecture at some future date.

Bleachers and dyers, like spinners and manufacturers, have their own particular forms of trouble, and it may interest you to see the other side of the case.

Bleaching consists of a series of very simple operations, but these operations require carrying out with the very greatest care because they involve the use of very powerful chemicals, and unless each process is completed in a proper manner all sorts of damages may occur. I shall, first of all, give you a short summary of the processes involved in bleaching, and afterwards show how damage may arise.

(1) The cloth is first stamped and then stretched end to end in lots of two to four tons, according to the class of cloth undergoing treatment.

(2) It is then singed over a gas singeing machine, or over a hot plate singeing stove.

(3) It is afterwards steeped in water, or some form of extract of malt, in order to loosen the size, and make it easy to remove in the washing process which follows.

(4) After the steeping, the cloth is conducted to the washing machine, into which it is passed through "pot eyes." The effect passing through the pot eyes is to form a "rope" of cloth, in which condition it is treated in all the processes which follow. The rope of cloth passes through the nip of two large wooden bowls, and it is subjected to a heavy stream of running water, generally from a two-inch pipe.

(5) From the washing machine the cloth is conducted to the liming machine, where it is impregnated with milk of lime, and then into the kier which also contains milk of lime.

(6) The cloth is boiled in the kier for a period of from 8 to 12 hours, either under pressure in a closed kier or under ordinary atmospheric pressure in an open kier.

A Lecture by Percy Bean, before Blackburn District Managers Association, Blackburn, England.

It is important that the cloth should be evenly plaited down in the kier and not simply dumped in, otherwise it may get seriously damaged, especially in a closed kier.

(7) After boiling the required length of time, the cloth is allowed to steep in the hot liquor for a few hours, care being taken that it is completely covered with liquor, otherwise it might become tendered.

(8) The cloth is then conducted to the washing machines, where it is well washed in order to free it from lime as much as possible. It is then carried forward to the scouring cisterns for the grey scouring process.

(9) In the sour cisterns the cloth is treated with dilute solution of hydrochloric acid, commonly known as spirits of salts. The object of this treatment is, in the first place to dissolve the excess of lime left in the cloth; secondly, to break up the lime soaps (produced by the action of the lime on the natural fats and waxes of the cotton and the fats which have been added in the size on the warp) into free fatty acids, which are readily removed in the soda ash boil which follows; and lastly, to dissolve out mineral impurities and iron stains which may be present in the cloth.

(10) After souring in acid the cloth is again well washed through the washing machine and conducted back to the kier, where it is again boiled. In this operation soda ash is used in place of lime, as already mentioned, together with a little soap. The cloth is boiled for eight or ten hours, as before, and allowed to stand in the liquor for a few hours with the usual precautions. It is then washed off in the kier with hot water and conducted once more to the washing machine, where it is well washed in running water.

(11) From the washing machine the cloth is conducted to the chemic cisterns, where it is treated with a dilute solution of "chemic" (chlorinated lime solution) for three or four hours. This operation is the real whitening process, but no attempt should be made to bring about a white condition during the processes of manufacture, have been removed by boiling and washing.

(12) After "chemicking," the cloth should be again very well washed in water on the washing machine and then conducted to the sour cisterns for a final souring in acid. The object of this souring process is, in the first place, to remove the last trace of "chemic" solution by bringing about its decomposition; secondly, to remove every trace of free lime, which "chemic" always contains; and lastly, to further whiten the cloth and dissolve out any stains, such as iron stains, which may have formed during the various processes.

(13) After the last souring the cloth must be very well washed to remove the last trace of acid. It is then passed through the squeezing machine to squeeze out as much water as possible, and afterwards scutched on the scutching machine. The latter process opens the cloth out to its full width from the rope form. From the scutching it is taken to the water mangle, where it is heavily mangled in the open width.

(14) After mangling it is either dried on the drying machine, if intended for white finishing or printing, or sent to the dyehouse if intended for dyeing.

Such, in brief are processes to which cotton goods are subjected in the various processes of bleaching. In some cases, especially for heavy goods, and for goods which have to be bleached a pure white, some modification of the foregoing processes will be necessary. For instance, very heavy goods, such as drills, satins, safeens, brocades and other faced goods should be treated to the various operations in the open width in specially designed bleaching plant, instead of in the rope form. The reason for this is that such fabrics are liable to become damaged on the face if subjected to heavy pressure in the rope form. Pure white bleaching on the other hand, requires additional boilings and washing over and above those mentioned for an ordinary bleach in the preceding paragraphs. In every process, even in the simple process of washing through a machine, there is a liability to cause damage if the greatest care be not exercised by those in charge of the operations. If the singeing machine does not give a level singe it may burn the cloth, with the result that either it will be tendered or it will come up patchy and streaky when dyed. If by any chance the manufacturer has used chloride of ma-

nesium in the size warp yarn will be badly tendered. If care be not exercised in the steeping process the cloth may become mildewed in a few hours and seriously damage the cloth. Mildew growths at this stage are more serious than if they occur in the grey cloth. In the former case the mildew attacks the fibre itself, where as in the latter only the starch of the size may be affected.

If care is not taken to see that the bowls of the washing machine are free from defects, such as big cracks, the cloth may get nipped and cut.

The very greatest care must be exercised during the boiling processes that nothing shall take place which can give rise to damage. It is important that every trace of air be expelled from the kier before the cloth is subjected to high pressure heat or steam, otherwise the cloth will be damaged by becoming tendered. The cloth should be plaited down in the kier in such a way as to allow free circulation of the kier liquors, otherwise the boiling will not be even and the cloth will be unevenly beached.

Iron staining from the kier is a very common cause of damage. This is mostly due to neglect in white-washing the kiers at regular intervals. The cloth may also get burnt by contact with the kier sides if it be allowed to become dry in any portion. This is more particularly the case when the cloth is being boiled in the open kier.

Lime stains may be developed in the kier during the boiling, either from the presence of too much lime or to the use of unsuitable water containing sulphate of soda. In the latter case the sulphate of soda precipitates sulphate of lime in the inside of the fibre, and it is a very difficult thing to remove at a later stage. Sulphate of lime stains are also produced if the cloth is soured in sulphuric acid in the rst souring process. Hydrochloric acid should be used always at this stage if damage from this cause is to be avoided. In the souring operation sufficient acid must be used to decompose the lime soaps formed during the lime boiling and also sufficient to dissolve the free lime. If this process be not thoroughly and correctly carried out it will give rise to many forms of damage later on. Instead of the cloth coming up bright and firm it will come up dull and greasy.

(Continued on Page 31)

# Development of the Spinning Frame

(Continued from Last Week)

Although the flier is no longer used in spinning cotton, it is now used on cotton and silk roving frames, and on some worsted spinning and drawing frames.

The flier was invented by Leonardo da Vinci about 1519 (figure 1).

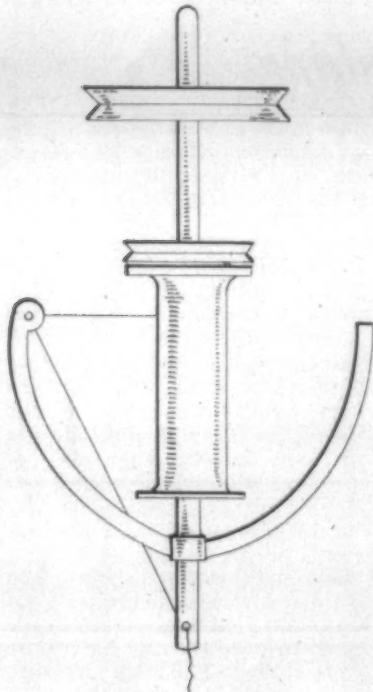


Fig. 13—Showing a Flier Used by Arkwright in 1775.

In 1530, Johann Jurgen, a of Wattenbittel, in Brunswick, Germany, a wood carver, constructed the first flier. Fliers were made of wood for the next 300 years.

By Robert E. Naumburg, Head of Research Dept. Saco-Lowell Shops.  
Paper Presented Before American Society of Chemical Engineers.  
Cuts Loaned Through Courtesy Mechanical Engineer.

verse motion and did away with the hooks. His flier of 1775 is shown in figure 13.

A flier in which the yarn or roving was brought down the outside

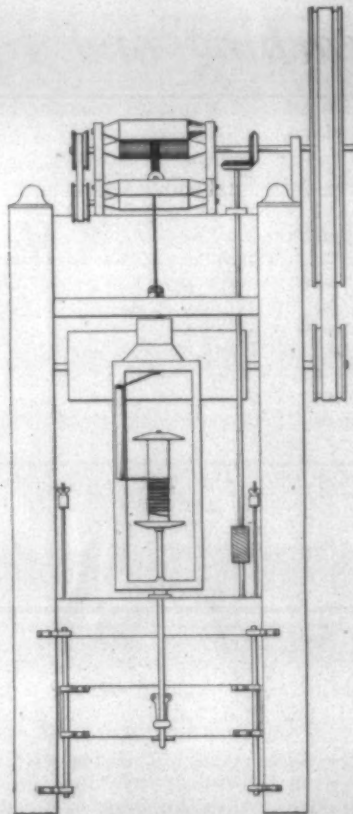


Fig. 15—Etchells' Hollow-Arm Flier, 1793.

ent granted to Matthew Etchells (figure 15), a cotton spinner of Mansfield, England, in 1793. This ingenious inventor simply used a piece of pipe through which he drew the cotton, the pipe being mounted on a wooden frame.

peresent agent of the Saco-Lowell Shops at Lowell, Mass. This process practically eliminates hand labor and the resulting irregularities in manufacture.

A comparison of the earliest type and the latest type of flier is shown in figure 17, which illustrates an interesting development in design and a still more striking development in the materials and the meth-

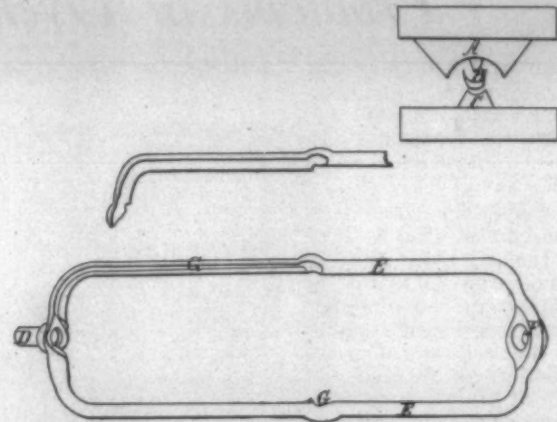


Fig. 16—Double Hollow-Arm Flier Patented by Pettee, 1834.

A somewhat later development was the double hollow-arm flier (figure 16) patented in 1834 by Otis Pettee, founder of the Pettee Machine Works, now part of the Saco-Lowell Shops at Newton Upper Falls, Mass. As in the patent to Etchells, Pettee's flier was long to allow the spool to be removed without taking off the flier. The double-arm flier is still in use on the cotton flier twister for high-ply or cabled yarns.

The common roving flier of the

ods of manufacture. The use of wood, cast iron, steel forgings, and finally pressed steel are not only the steps in the improvement of the flier, but represent a cross-section of mechanical progress during this period.

## Cap Spinning.

The second method of spinning is with the cap. This is used at the present time for worsted, but a century ago it was used for cotton also. Many persons are under the

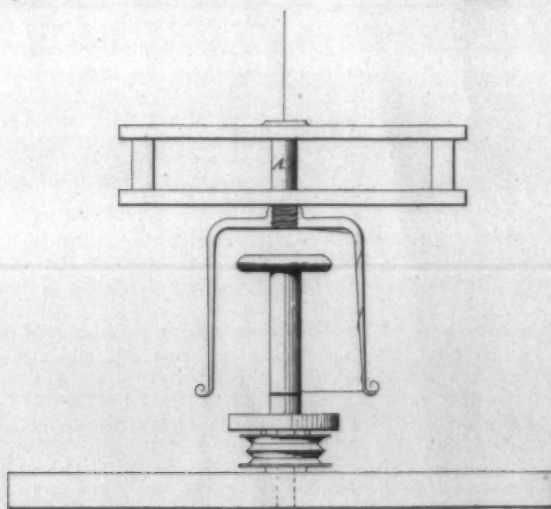


Fig. 14—Morgan Flier in Which the Yarn is Brought Down on the Outside of the Arm, 1836.

The domestic spinning wheel shown in figure 2 illustrates the early form of wooden flier. The water frame Arkwright, figure 3, shows the next step. Six years later Arkwright used an automatic tra-

a. The Linen Trade of Europe During the Spinning Wheel Period, by John Horner.

of the arm is shown in a patent (figure 14) to J. Morgan, of Manayunk, Pa., granted in 1836. This is very much like the fliers now used on worsted and jute spinning.

The first attempt that we have been able to discover at making a hollow-arm flier (which shields the yarn or roving from the air resistance) is shown in the British pat-

present day has one solid arm and one hollow arm, a presser being attached to the hollow arm. One of the most successful forms of modern fliers is the welded-steel flier. A patent on an improved method of manufacturing such fliers was granted in 1921 to E. B. Feaster.

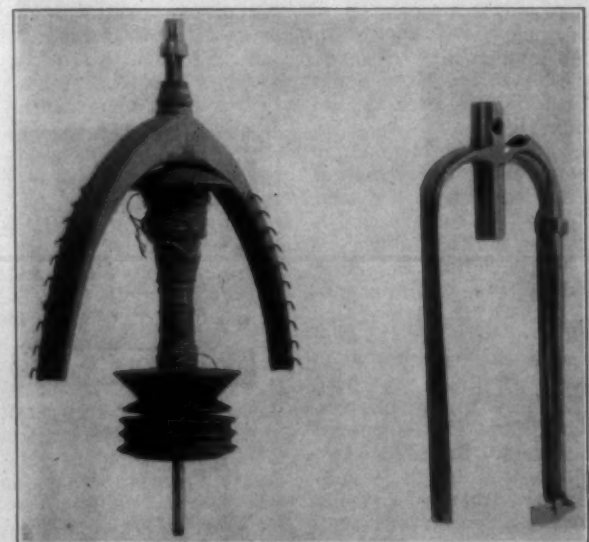


Fig. 17—A Comparison of the Earliest and Latest Types of Fliers

impression that cap spinning is entirely of English origin.

On June 11, 1828, Charles Danforth of Paterson, N. J., applied for a United States patent on his "immovable flier" or "bobbin flier" (figure 18). His patent was granted September 2, 1828. He described

ed his invention as an "improvement in the construction, manufacture and management of bobbins and fliers for spinning cotton." After describing his cap spinning device, Danforth states that he "claims not only the exclusive right construct fliers in this specific way, but the

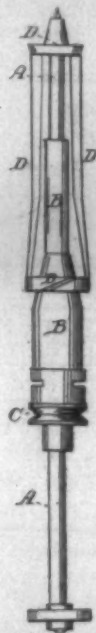


Fig. 18—"Immovable Flier" Invented by Danworth in 1828.

application of the principle of making and using fixed immovable fliers, in all and every mode whatsoever, for the above purposes."

On November 10, 1828, John Thorp of Providence, R. I., applied for a

forth's, shows the cap, spindle, whirl, rail, and thread eye practically as they exist today. What we call a "cap," he calls a "cup" or "can." He calls a "whirl" a "whur." He describes his invention as follows:

"The cup or can rests and is hung upon a shoulder at the top of the

the yarn when the bobbin is in the can."

John Hutchison, a merchant of Liverpool, England, was the first to patent cap spinning in Great Britain. His application was filed July 30, 1829, or more than a year after Danforth had applied for his United States patent.

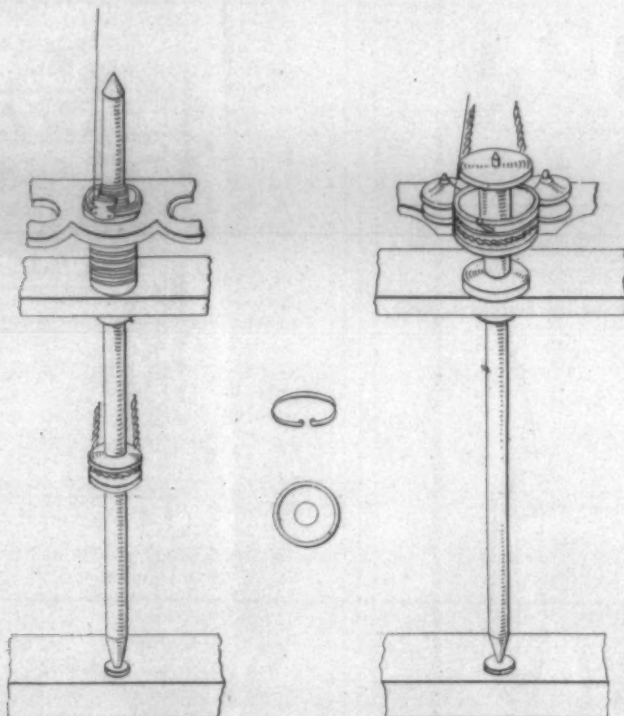


Fig. 20—Type of Ring Spinning Frame Invented by Thorp, 1828

Although spinning caps have now been used for nearly a century there have been no important improvements over the original designs.

#### Rings and Travelers.

The third method of spinning, which was invented about the same time as the cap, is ring-spinning.

Like cap spinning, it was an American invention, the first ring-spinning patent being granted to John Thorp, of Providence, on November 20, 1828. This patent was granted to him within a few days of his cap-spinning patent.

His patent does not show the ring and traveler, but it shows two other constructions (figure 20). The first is a two-piece ring, one section being stationary and the other section, which revolves, having a hook attached to it. The latter is dragged around. In this case the spindle is positively driven, as it is on the modern spinning frame.

In Thorp's second construction the ring is positively driven and the spindle is dragged around by the yarn. The latter system has certain advantages and disadvantages. Whatever these may be, this construction has been invented and reinvented a great many times.

The most important improvement made in spinning with a ring, was the invention of the traveler.

There is some doubt who was its inventor. A United States patent on a spinning frame was granted to Addison and Stephens, of New York City, in 1829. All records of this patent were destroyed by a fire in the Patent Office, but it is said that

this patent showed the ring and traveler.

Other authorities maintain that the traveler was invented by a Mr. Jenks of Pawtucket, R. I., in 1830, but that he did not apply for a patent.

The first patent now available which shows the traveler in its present form was granted to John Thorp in 1844 (figure 21). He describes this as an improvement on his ring patent of 1828.

The invention of the ring and traveler meant a great saving in initial cost of construction, as well as in power as compared to the flier, and a great increase in speed was also obtained. Centrifugal force force which limits the speed of the flier, has no harmful effect upon the traveler until much higher speeds.

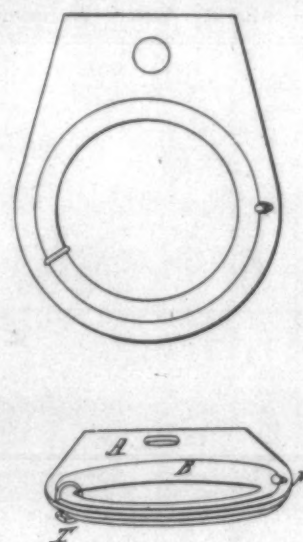


Fig. 21—Ring Spinning Frame with Traveler Patented by Thorp in 1844.

Then the heat produced due to friction, eventually melts or "burns" the traveler.

The original travelers were undoubtedly bent pins. The mill operatives were expected to "roll their own."

According to A. Curtis Tingley, of Providence, who read a paper on the ring traveler before the New England Cotton Manufacturers Association in 1897, this device was not



Fig. 22—Round-Point Traveler Invented by Pierce, 1869.

mentioned in any treatise before 1854.

One of the later developments made in travelers was the round-pointed traveler invented by H. L. Pierce, of Taunton, Mass., in 1869, and shown in figure 22-a, and b. Previously all travelers were made with square points as in c. The advantages claimed for the round-pointed travelers are that they are easier to slip on the ring, easier to harden and temper uniformly, and that there are no sharp corners to cut into the ring.

The commercial use of the ring and traveler brought with it further developments. A patent was

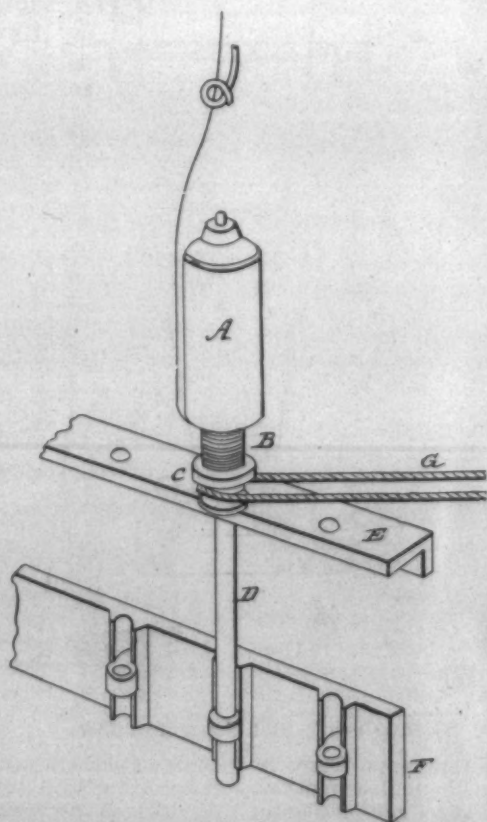


Fig. 19—Thorp's Cap Spinning Machine, 1828.

patent on a cap machine, shown in figure 19. On November 25, 1828, his patent was granted, in the remarkably short period of 15 days.

John Thorp's patent, unlike Dan-

spindle, and its cavity is sufficiently large to admit the bobbin. This can be lifted off and put on again with ease. It must be taken off to change the bobbins, and to mend or piece

granted in 1863 to Welcome Jenckes, of Manchester, N. H., for an adjustable spinning ring supported by three screws equally spaced, as shown in figure 23. Within the next ten years half a dozen other patents

duplex-race ring or double-flanged ring (figure 24), was granted to W. T. Carroll, of Medway, Mass., in 1869. double ring, which had two races. When one surface is worn out the

been a tendency toward larger-diameter rings, which mean larger-diameter bobbins, and hence less labor in the following operation of spooling or winding. This tendency is limited, of course, by the quality and strength of the yarn required, by excessive breakages of the yarn in spinning, and also by the increased floor space required.

Closely allied to the general ar-

kept busy doing by hand what was done automatically a few years later. Arkwright's second patent of 1775, shows a flier with an automatic traverse.

The traverse applied to spinning was invented by Leonardo da Vinci in Italy in 1519 (figure 1). However, his invention was not appreciated in his day, and we do not know of its application to spinning

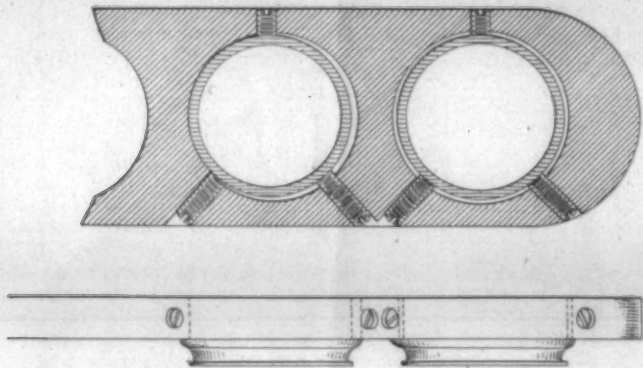


Fig. 23—Adjustable Spinning Ring Invented by Jenckes, 1863

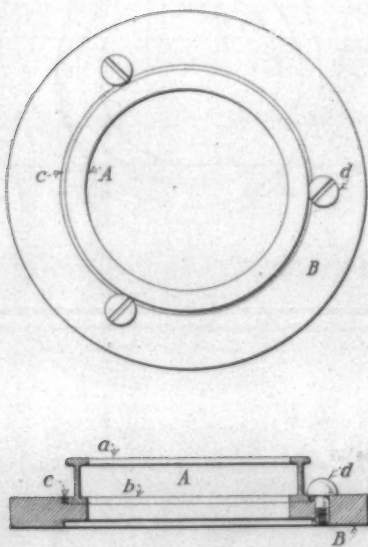


Fig. 24—Duplex Race Ring Invented by Carroll, 1869

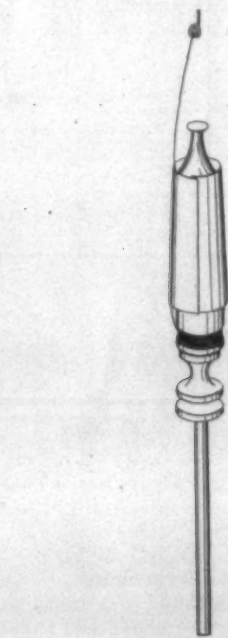


Fig. 26—Separator to Restrain the Balloon in Cap Spinning—Invented by Thorp, 1829.

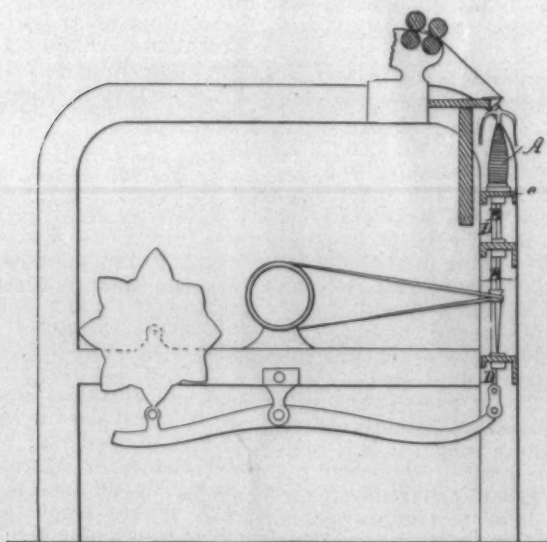


Fig. 25—Single-Cam Traverse Motion Invented by Thorp in 1829

were granted to inventors for eccentric bushings and sliding plates to allow the adjustment of the ring in relation to the spindles.

Another improvement was the

ring may be turned over and the other surface used. A patent on the

Since then most of the improvements have been in design or in method of manufacture. There has

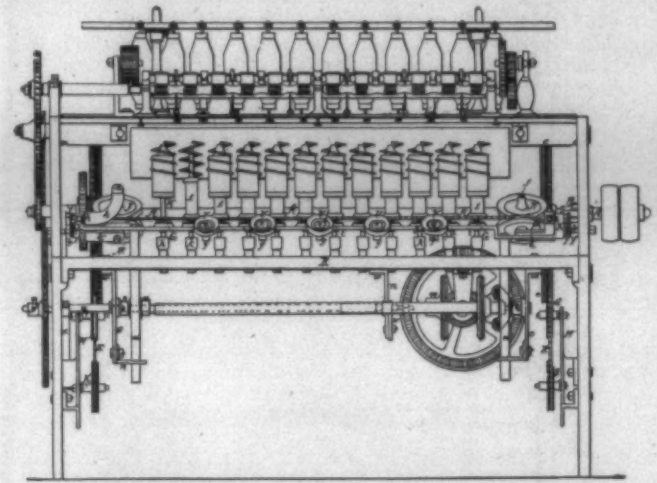


Fig. 27—Spiral Wire Separator Used by Danforth, 1841.

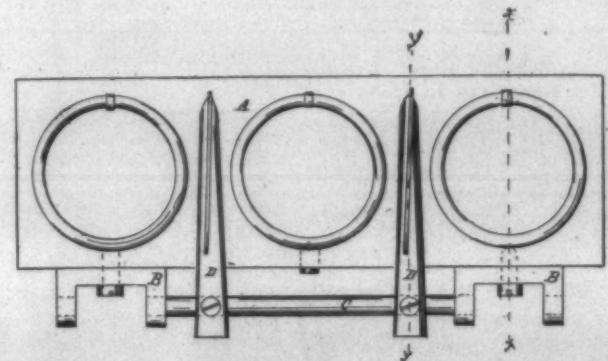


Fig. 28—Haythorn's Flat Separator, 1868.

range of the spinning frame is the traverse and the builder motion.

The spinning wheel equipped with a flier (figure 2) had no automatic traverse and depended on the operative's shifting the yarn by hand from one guide hook to another.

In his first patent of 1769 Arkwright followed this custom, and an operative would probably be

frame until the second patent granted to Arkwright, mentioned above.

On March 20, 1829, a patent was granted to John Thorp, of Providence, R. I., on a machine for winding bobbins. See figure 25. By the use of one large builidr cam, Thorp obtained what is called a compound wind, being a combination of warp

(Continued on Page 32)

## Faults in Ring Spinning

**THIS** fault, variously known as "thick," "double," "wiry yarn," and "wiriness," is due to the following causes: An end broken in front of the rollers and attached to an adjacent end instead of passing round one of the clearers; three ends of roving passing through one guide eye when using double roving, or two ends of roving being combined in case of spinning from single roving; long roving piecings when creeling; "double" in the roving as received from the roving frame; piecing to the wrong end when creeling; the spinner allowing the broken end to be twisted too long before effecting the actual piecing; roving not gripped properly by the rollers; excessive movement of the traverse guide; top rollers not properly weighted; front top roller not revolving freely; one end of a top roller raised due to a lap of roving.

### Soft Yarn.

Yarn which contains an insufficient amount of twist is often termed "soft twist" in case it is for warp. The causes of soft yarn are as follows: Slack spindle bands; traveler clearers set too close; twist change wheel too large; empty bobbins not properly pushed down during doffing; upper bearing of bobbins badly worn; bobbins out of balance; upper bearing of bobbin blocked with waste; spindle cups full of waste; spindle bolsters short of oil or dirty oil requires replacing; spindle out of balance; dirty rings; full bobbins too large in diameter compared with rings.

### Thin Places.

When this fault occurs at regular intervals the causes are: A broken tooth in one of the roller wheels; sections of bottom rollers not tightly fitted together; hard matter in the roots of the roller wheels; faulty piecings in leather-covered rollers. Thin places at uneven distances apart are due to stretched roving; blunt skewer points; traverse guide holes blocked with waste; too much soft waste in the mixing; creel guide rods not in the correct position; insufficient twist in the roving; too much draft at the roving frame or ring frame.

### Slubs.

This fault is quite distinct from that known as "thick." A slub in yarn is a soft place which is much too thick, and may be only a fraction of an inch or it may extend for a new inches in length. The causes are as follows: Too long an overlap when piecing-up ends at the front or when renewing rovings in the creel; waste held in spinner's hand allowed to catch on the end when piecing-up; tufts of waste falling from top clearers on to the roving passing between the pairs of rollers; carelessly removing waste from bottom clearer; tufts of fibres accumulating at the holes of the traverse guides and occasionally passing forward with the roving; brushing off fly from various parts of the frame and some of it dropping on to the ends of roving or yarn; fly on creel top adhering to

full roving bobbins and not removed before creeling.

### Dirty and Oil-Stained Yarn.

See the causes given in connection with dirty and oil-stained roving. The causes of dirty and oil-stained yarn at the ring frame are as follows: Making piecings of roving or yarn with oily or dirty fingers; oil escaping from necks of rollers and running on to the actual drafting parts of rollers, thus staining the roving; oil from belt guide pulleys over gearing end of ring frame; full roving bobbins rolling on the floor and under the frame; waste dropping on to the roving or yarn when cleaning parts above the frame or when cleaning the ring rail, lappets and creel. Some method should be adopted in the ring spinning room to have roving bobbins removed from the creel when dirty and oil-stained parts are observed, the quantity of these faulty rovings, or "black bits," being recorded and returned each day to the cardroom for the carder's inspection. Another method is for the spinners to observe the rovings in the creel while attending to their ordinary duties and remove any defective lengths of roving, these being collected at intervals, recorded, and returned to the cardroom for the carder's attention.

### Cloudy Yarns.

Cloudy or uneven yarn generally is due to the following causes: Draft too small; distance from the front to middle pairs of rollers too small; leather rollers not held in proper position by the cap bar nebs; worn cap nebs; leather-covered rollers rough, hollow, soft, or channelled; waste on middle and back bottom rollers; waste at the traverse guide holes; roving stretched either at the roving frame or whilst unwinding in the ring frame creel; uneven roving; bad spinning; mixing of cottons which are insufficiently alike in length and strength; using too much soft waste in mixings; the lappets, separators, roving guide rods and roller beam not cleaned often enough.

This fault in yarn is the result of carelessly starting and stopping the ring frame; mixing cottons which are too widely different in length of staple; rollers set too close; travelers too light; poor leather rollers; too much or too little draft; traverse motion not properly adjusted.

### Ends Breaking Down.

There are many causes of an excessive number of ends breaking down between the front rollers and the bobbins, this fault also being commonly termed bad spinning. The causes are as follows: Draft change wheel of unsuitable size, badly geared, or not properly secured to its stud; twist change wheel too large or not correctly meshed; teeth broken in the twist change wheel or any of the roller wheels; roving overdrafted or stretched at the fly frames; cotton weaker than usual; not enough twist in roving; travelers too heavy; full bobbins too large in diameter compared with the

(Continued on Page 14)

## ECONOMY



**LADEW Leather Belting**  
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Live, super-strong leather gives Ladew belts extra long life. The skill of 89 years of good belt making keeps them from needing repairs or attention. No time lost by men and machines because of belt trouble.

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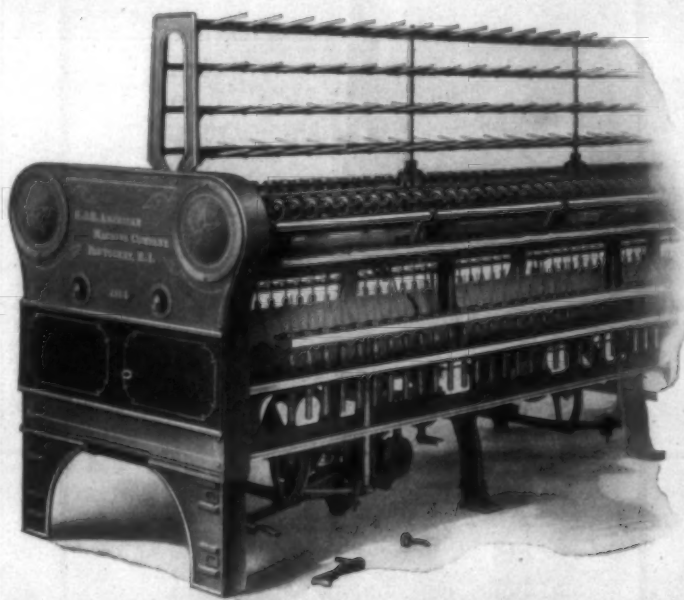
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The illustration above shows the Head End Section of our Improved Twister. This machine, like our Spinning Frame, is of Heavy Construction, which insures light running and reduces vibration and cost of upkeep. We build these machines in all Gauges and for any number of ply with either Band or Tape Drive. There are many distinctive features in our machine which we describe in a Special Bulletin.

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## Preparing Viscose Yarns for Weaving

IT is taken for granted that those who read this article will have some knowledge of the preliminary processes of weaving and of weaving itself. It will therefore, not be necessary for me to attempt to describe these processes in detail, but only in so far as they differ from common practice when viscose is being manufactured into woven structures, says an article in the Manchester Guardian by Thomas Brough. Success in the manufacture of viscose is not due to any revolutionary changes in the methods of warping, spooling, or weaving, but to understanding the nature and peculiarities of the new fibre, and the altering or adjusting of certain details in these processes to suit its weaknesses and peculiarities.

Before I commence to discuss even the preliminary weaving of viscose it will perhaps be as well to take a brief glance at the material itself. If a thread of viscose is examined it will be found to be composed of a number of fine, separate, and continuous filaments, which are extremely delicate in structure and which will not stand excessive friction. If, without breaking the thread, we strain it by pulling it between the fingers and thumb of each hand, and then allow the thread to hang between the two hands like a festoon, the strained portion of the thread will be seen to remain almost straight and stiff. Consequently when rayon is handled in any process connected with weaving it should be the aim of the operator to see that as far as possible both friction and strain are avoided, because friction damages the thread and strain stretches and stiffens it.

It is necessary to train operatives in the handling of viscose, and this work cannot be accomplished at once, especially if the operatives in question have "grown up" and become accustomed to the handling of other rougher and stronger fibres.

Bobbins containing viscose should not be thrown haphazard into bins or skips, but should be placed on specially constructed peg boards, the same as the one shown on the floor. These bobbin boards each contain 50 pegs, each peg carrying two bobbins, so that the capacity of each board is exactly 100 bobbins; thus it becomes unnecessary to count them, and the bobbins containing the viscose can be readily handled and carried about.

### Warping.

In warping care should be taken to avoid using bobbins that are softly wound along the edges. When warping from a soft-edged bobbin the thread is liable to get embedded in the soft portions of the material as it is being drawn off, which increases its tension, and is liable to cause strained ends in the warp. It is important to see that the bobbins on the creel back run freely and with as little strain on the threads as is practicable.

A good method to follow before clothing the creel is to place on each creel peg first a wooden cone, then a felt washer, followed by a small

iron washer, and finally the bobbin of viscose. The broad end of the cone should be next to the felt washer. This method not only insures an almost perfectly free-running bobbin, but also enables the tension to be regulated. If the small iron washers are removed and the bobbins are in contact with the felt washers, slightly more tension will be given to the thread. It is usual to warp the finer counts of viscose from small bobbins, and the heavier counts from larger bobbins.

Bobbins for warping viscose should be as near as possible equal in size and weight. When the creel is first set up full bobbins should be used. This helps to keep uniform tension on the threads, and not only enables long lengths of warp to be made without the necessity of replenishing, but reduces the tying of knots. The creel frequently used is the usual V-shaped upright creel.

All warp beams for which rayon is used should be periodically inspected to see that both the gudgeons and the beam itself are running true and without any eccentric motion. After the warp is put on the warping reel it is beamed direct from the reel, either on to a loom beam or on to a dressing beam. When the beaming process is about to commence, instead of having the usual grooved slot and rod running across the beam to fasten in the warp ends circular holes about 1 in. apart across the beam, and hooks screwed into these holes so that the tops of the hooks are just below the surface of the beam. To these hooks bunches of the warp ends from the warping reel are tied, with the result that, as the warp winds itself on to the beam, this portion of the warp does not bulge and get out of shape, as is usual with the rod-and-slot method of fastening in the ends. By this method an almost perfectly circular warp is obtained.

In a weaving mill where a large number of qualities are made and where the widths of the goods vary it will be found necessary to frequently move the iron flanges of the beams to suit the varying widths of the warps. Iron flanges will damage a wooden beam by compressing its surface, thus making the diameter smaller at each side. When a beam is so damaged the thinner portions should be packed with paper to level it up so as to prevent slack and tight ends. Another important point necessary to observe is that the flanges of the beam must not only be carefully fixed, but they must have a flat smooth surface to prevent the warping of viscose sent to the viscose threads, otherwise the filaments of the threads will be frayed and damage will result.

### Sizing.

Sizing is the coating of the viscose thread with an adhesive substance, which consolidates the filaments and enables them to withstand a greater amount of friction. Just as sizing is necessary for the successful weaving of single cotton

(Continued on Page 32)

## New Loom May Revolutionize Weaving

THE new Carver loom, invented by Dr. Thomas A. Carver, of England, is creating a great deal of attention in Lancashire and it is predicted that it will have a marked influence on weaving in the future. In an article in the Daily News Record, M. D. C. Crawford, research editor of the Fairchild Publications, gives the following interesting information about the new loom. He says:

"I have seen this machine and had it explained and detailed by the inventor, and I am strongly of the opinion that it will have a decided influence, not only in the damask field to which it is peculiarly adapted at present, but will change the entire character of weaving implements. The principle of this machine may be described as electro-chemical. That is, the warp is manipulated by needles touching a metal surface partially insulated and partially non-insulated, according to pattern. The machine has successfully passed the experimental stage and the machinery makers are now busy on plans to produce the parts in bulk. One part, consisting of a series of brass interlocking lifts, has to be made by the metal stampers of Switzerland, because of the very great degree of accuracy which is essential. There is nothing else about the loom that cannot be made in any loom works in either America or Great Britain, and there is nothing in the operation of the loom that cannot easily be mastered by an ordinarily good weaver. It will require, of course, a retraining of loomfixers and the electricians will be a more important part of the personnel than formerly. The machine has, however, been so rationally planned and is backed by such competent technicians and business men as to be safely and out of the experimental class.

### The Operation of the Loom.

"As I have said, its operation is a combination of electrical and chemical sciences. The cumbersome cards of the damask-jacquard are replaced by thin strips of metal coated with an insulating paint or varnish. Over these strips the designs painted on tracing paper are placed and exposed to the sunlight, just as though photograph paper were exposed with negatives. After a few minutes' exposure, the metal strip is washed in warm water and the part that was covered by the opaque surface of the design washes away, leaving part of the surface insulated and part non-insulated. These strips are wound on drums and as they unwind are intermittently touched by little needles connecting and disconnecting electrical energy, according as these come in contact with the insulated or non-insulated surface. So far the machine has been devised to accommodate 40 needle to the inch and each needle may control one or more harnesses, and each harness has its own electrical connection and that part of the pattern controlled by this connection can be eliminated or reversed.

"So far the loom can only weave at one time two twill patterns, one for the ground and one for the design, but any two twills within the range of twilling may be combined, but the same two twills have to remain in the ground and in the figure throughout the entire operation, and only two can be in any cloth woven. This obviously restricts the loom to the simpler damask constructions, without in any degree limiting the design or the number of colors to be used, either in the warp or through box attachments.

"In size, the loom is about one-third to one-quarter the size of the average damask-jacquard. All parts of it can be reached by a mechanic standing on the floor. The metal strips can be changed and new patterns produced within 48 hours of the receipt of new designs. It is just as cheap to make small runs as it is to make long runs and great flexibility in design is, therefore, possible with a corresponding flexibility in regard to fashions.

### Ideal for Damask Tablecloths.

"The loom is apparently ideally devised for damask tablecloths, whether cotton or linen, for towel-ing, for certain types of upholstery fabrics and even for the less complex jacquards, for dress fabrics. I should further suggest that it might be a valuable addition in gingham mills permitting the development of fabrics now regarded as outside the range of such organizations. It is difficult to estimate the actual production of such a machine, but according to the inventor and to my own belief, this loom can be run at a speed of 200 picks a minute, and I see no reason why weavers, once they are familiar with the device, cannot tend as many of these machines as they do the simple Dobby looms. Its chief advantages are the cheapness of producing design, the speed with which designs may be changed, the small space that is occupied in a mill and the small space required for the storage of patterns not in use, and the fact that it is not necessary to cut cards to produce designs.

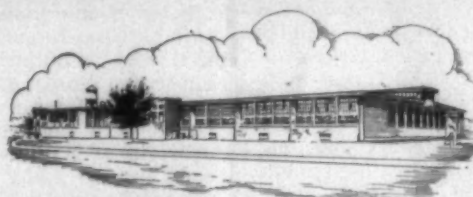
Dr. Carver is now conducting a final research into the problems of producing this loom for the market. He is well established in a large laboratory in the works of Crossley Bros., Ltd., Witworth street, Openshaw, near Manchester, and has at his command the facilities of this great engineering plant.

He said to the writer:

### Inventor Claims Simplicity.

Up to a few years ago I knew nothing at all about the textile industry. By profession I am an electrical engineer. I approached the problem, therefore, with a mind free from the usual prejudices which grow up in so complex and long established an industry. It seemed to me that the principle of the damask and control was cumbersome and awkward and that the weave masses had not taken proper account of the advances made in the electrical and chemical sciences, and were producing results through

(Continued on Page 33)



## Profits in a glutted market

LIKE other concerns in the South, the Mansfield Mills, Inc., at Lumberton, N.C., were makers of yarns. They owned several mills whose product was sold to other concerns for manufacture into cloth.

The yarn market collapsed. A glutted market threatened to keep their mills idle. This was the situation we found when we were asked to co-operate.

Careful analysis of textile conditions showed that it would be desirable for our client to weave the yarns they made, and sell the resulting product in finished form.

We reorganized the old units according to this plan. Today this client is an important step nearer the consumer, and freed from the menace of a glutted market.

Lockwood-Greene service is designed to meet every requirement of industry. The Lockwood-Greene organization includes men of broad business and financial experience as well as engineering skill. From the preliminary study of markets and manufacturing, to the delivery of the finished plant, Lockwood, Greene & Co. offer you a service that is sound both commercially and technically.

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## Faults in Ring Spinning

(Continued from Page 11)

rings; yarn too weak to withstand the winding on of the binding coils from nose to shoulder; excessive speed of ring rail; top and bottom rollers not kept clean enough; blunt pointed roving skewers; clearers not picked often enough; travelers too heavy; mixing of unsuitable cottons, such as smooth and rough cottons, short and long staples, etc.; bobbins not gripping the spindles properly; rovings not free enough of single, double, slubs and thin places; waste on top of roving skewers interfering with their rotation; traverse rod eyes not kept clear of waste; creel steps cracked or rough; thread guides not set correctly, especially when spinning fine counts; thread guides nicked where yarn passes over; rings worn rough on the insides; creel guide rods not in the most suitable position; setting of front and middle rollers not suited to the cotton and hank roving; leather rollers not renewed often enough; spindles not running true; dirt adhering to rings; empty bobbins too small in diameter; dirty oil in spindle bolsters, or spindles short of oil; travelers badly worn; traveler clearers set too close; fly on ring rails and separators not removed often enough; unsuitable atmospheric conditions; brasses in roller stands badly worn; rollers not of line; unbalanced bobbins; ring rails not moving steadily; wheels not secure

on the rollers; bottom rollers require scouring; excessive speed of frame.

When an odd end persists in breaking down it may be due to some of the causes already given, or it may be caused by using a roving bobbin too fine in hank; spindle band too slack, too tight, or tied with a bulky knot; scratched or dented flutes in bottom rollers; loose thread wire; roving traverse guide wire bent out of position; over-lap of leather-cot joint turned back due to being put in the cap nets the wrong way; waste on traveler; front top roller short of oil; wrong traveler; not using a light enough traveler on a new ring; worn inner tube of spindle—Textile Recorder.

## Export Business Seriously Sought

Washington, D. C.—No longer can the charge be made that American manufacturers care for export business only when domestic orders are slack, according to E. T. Pickard, chief of the Textile Division of the Bureau of Foreign and Domestic Commerce. In fact, this old story, frequently used to discredit American exporters, lost its foundation at least 10 years ago, Mr. Pickard asserts.

American packing of goods is excelled by none, and every effort is made by exporters of the United States to comply with customs of the market to which they are ship-

ping, Mr. Pickard says. In textiles, the bulk of exports is sent forward by firms long in this business, and who know what they are doing and who will seek foreign orders regardless of the domestic market, the division chief asserts.

It is true, Mr. Pickard admits, that when domestic orders are slack there is a tendency, naturally, for firms not ordinarily great interested to seek a foreign market, but more and more all manufacturers are beginning to realize that foreign trade is worth having, and are going after it systematically, he says.

### Important Markets.

Mr. Pickard believes that the greatest development in exports of textiles, so far as staples are concerned, may be expected in Latin America, the Near East, Africa and the East Indies, although he believes that there will also be greater business with the Scandinavian and Balkan countries of Europe.

He does not anticipate any great market in the major portion of Western and Central Europe for American textiles. American hosiery, especially cotton, is being sold heavily in Great Britain, while both rayon and silk have been sold on the Continent. Some specialties in underwear and fine silk and rayon goods also have found a market both in Britain and on the Continent.

Facts speak for themselves, Mr. Pickard points out, and the facts are that exports to Latin America have increased very materially.

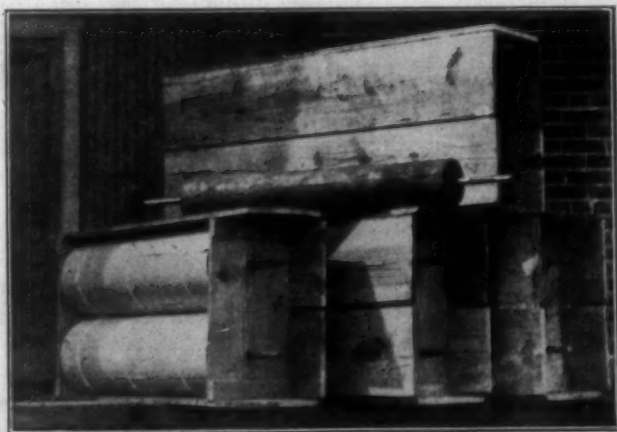
Ten years ago, the trade with Latin America in textiles was principally in staples, gray goods. Now, this country is shipping all kinds of goods there. As this country has purchased more of the raw materials, and other products of these countries, the purchasing power of the people there has been increased and they have sought better goods here.

### Cotton Goods Volume.

The total volume of cotton goods exported to all countries of the world in 1924 exceeded that of 1913 by 7½ per cent. Shipments of cotton cloth to Latin America increased from 54,000,000 square yards in 1913, to 126,000,000 square yards in 1924. Last year, Columbia alone took 32,000,000 square yards, being the largest individual purchaser in South America.

### Fewer Yarn Sizes Wanted.

Proposals to reduce the present number of yarn sizes with a view toward simplifying the problem of the underwear knitting industry will be discussed at the spring meeting of the Associated Knit Underwear Manufacturers of America, to be held at the Hotel Traymore, in Atlantic City on May 15 and 16, according to an announcement made yesterday by Roy A. Cheney, secretary. Representatives of the Southern Yarn Spinners' Association will confer with the knitters on this problem.



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Compare the two shipments pictured above.

A simple metal-tipped paper shell, easily applied over any 2¼" wooden core at the loom, takes place of heavy wooden beam in shipment. Saves 30 to 60% of transportation charges—60 to 80% of packing

charges. No loom beams in transit. No delay.

Our facilities and experience are at your service for winding, warping, copping, coning, and throwing of real silk or artificial silk.

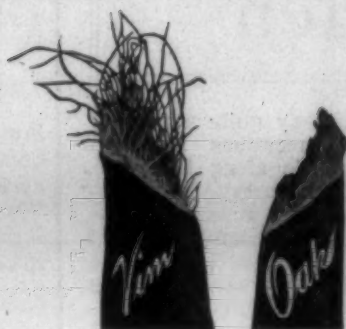
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FIBER

LENGTH

MEANS

LEATHER

STRENGTH

## Just An Advertisement

by Chas. E. Carpenter,

Near Editor

**T**HE illustrations show a piece of oak and one of VIM Leather, torn under the same conditions.

Please note the difference in the length of the fibers.

This is due to the fact that VIM Leather is made from a longer fiber hide than oak and the VIM process of tannage preserves all the fiber, while the oak process destroys much of the fiber.

I don't have to tell a textile man that the quality of any fabric depends upon the length, strength and closeness of contact of its fibers and this is as true of a fabric knit by nature, such as leather, as it is of cloth woven on a loom.

The tan color of oak leather is due to the oak bark pigment in the pores. This pigment is detrimental to quality, as it keeps the fibers from coming into close contact. There is no pigment in VIM Leather and nothing to prevent the shrinking of the fibers into the closest contact.

Within thirty days of the preparation of this copy, the transmission engineer for one of the oldest established oak leather belting manufacturers in the World, admitted in a

printed article, that mineral tanned leather belting was the coming belt. He made only one error. He should have said, "MINERAL TANNED LEATHER BELTING IS THE BEST BELT." For VIM is mineral tanned and we honestly believe that there was a greater quantity of VIM LEATHER BELTING sold in 1924 than there was sold of any other brand of first quality leather belting.

It is a fact that, after resisting as long as possible, the onward march which VIM LEATHER BELTING has been making to the top of the quality ranks of belting, the experts now very generally admit that a belt made wholly or partly of mineral tanned leather, is undoubtedly the best.

Some, still interested in the sale of vegetable tanned leather belting, still express doubt as to whether VIM Leather Belt is worth the difference in price, but the practical mill man is the best judge of that. Every VIM LEATHER BELT user used vegetable tanned leather belting for years before he adopted VIM and giving VIM the preference at a higher price, he creates a fact which tells its own story of VIM worth.

Order a trial VIM Leather Belt and permit it to tell its own story of merit, in the mute language of actual service, in your own mill, under your own supervision.

That's the real test.

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It is practical. The principle ingredients are divided into two units and therefore can be adjusted to the individual mill conditions, whether they be of a physical or manufacturing nature.

Try it at our expense

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44 East 23rd Street  
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## Practical Discussions

By

Practical Men

### Feeler Waste.

Editor:

Please allow me to ask the following questions in your quiz section: What should be considered a minimum amount of waste per week from 306 48-inch looms on No. 6-1 filling? Could this be reduced to any great extent with the slides feeler—with the same attention that the standard feeler gets? Would like to hear from several good overseers on this, as this waste is a big item and I would like to learn some way to cut mine down.

Feeler Waste.

### Speed of Fly Wheel.

Editor:

Our cotton mill would stand a little more speed all around. We are running by steam engine, but we fear it is already going as much speed as it will stand within the safety limit. We would like to ask, through your valued paper, if some chief engineer will kindly advise us the limit of speed for a fly wheel 16 feet in diameter with 48-inch face and having two 24-inch triple ply belts. We have always operated a little under speed, believing it is best not to overspeed machinery, but with present day close competition we must not lag behind. We must drive for every economy. Meantime we would appreciate candid advice from any sincere source.

Agent.

### Answer to Miss.

Editor:

There should be no general difference in the breaking strength of the cloth, whether the testing pieces come from the middle of the cloth or next to the selvage. If there is any difference this can be locally ascertained by making a few repeated tests. The work of the temple, theoretically, would seem to injure the breaking strength of the cloth, but this theory has not been generally accepted as correct. As stated previously, the correct solution of such matters is to carry on considerable testing until local authorities are satisfied with the results pro or con.

N. C.

### Answer to Subscriber.

Editor:

In regard to stop motions for spinning frames, will say that "Subscriber" has asked about one of the most important inventions which can be put onto a spinning frame.

There are already quite a number of different inventions and improvements made along this line. None of them have ever been generally adopted because they are supposed to be too complicated and that it is a hard thing to train the spinners to get accustomed to using them. There are a few of the simpler constructed ones which it would seem could be used to the great advantage of cotton spinning. I was among the first to invent a stop-motion for spinning frames over twenty years ago. At that time there were only about five patents granted to inventors of such devices. Soon as my patent was granted I completely equipped quite a large spinning room and successfully operated it with these stop-motions. The waste which was made in a week's time I could carry in my vest pocket. The reason why this invention was not commercially developed was because it was invented on my employer's time and money, and it was very properly assigned to them and none of us have ever had time to push it on the market.

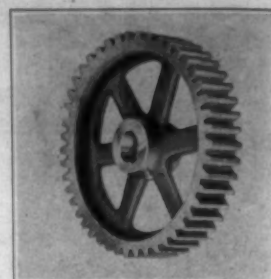
The advantages found at that time were as follows: Perfectly adjustable thread guides, roving supply cut out soon as an end break, lapping around the rolls entirely prevented, great saving of leather top rolls, the life of steel rolls prolonged, great reduction in the breakage of ends, smoother and stronger yarns, waste reduced to a minimum, production per spindle increased, could be applied to any spinning frame, self adjusted when the end was being pieced, it was simple of construction, low cost, easily installed, no increased tension on the yarn, it took the place of the ordinary thread boards, easily operated.

H. D. Martin.

### Cost of Waste.

Editor:

In the table of "Cost of No. 12s Yarn," compiled by the Southern Yarn Spinners' Association and published in your issue of April 23, it appears that the waste has been figured at 15 per cent and assumes a yield of only 85 pounds of yarn from 100 pounds gross weight of cotton. It has been my impression that in the case of such coarse counts the waste in any well managed mill would not be over 11 per cent (say 5 per cent for tare and 6 per cent loss after opening the bale), which would give a yield of at least 89 pounds of yarn from 100 pounds gross weight of cotton. Assuming the cotton to cost 24.50 cents



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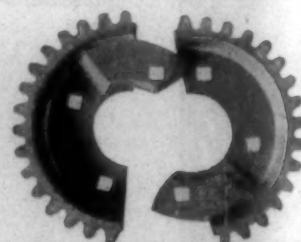
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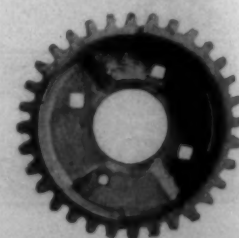
to any loom to replace a broken crank shaft gear. Saves material and time and also increases production.

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**Dan Gear Co.**

Caroleen, N. C.



a pound, dividing by .89 will give cost of cotton in yarn as 27.53; then 27.53—24.50 gives 3.03 cents per pound as the cost of waste. The association evidently divides 24.50 by .85, giving cost of cotton in yarn as 28.83; then 28.83—24.50 gives the 4.33 cents per pound that it shows as the cost of waste. With cotton at 24.50 cents a pound, the difference in the cost of waste is 1.30 cents a pound at the relative production stated.

Will some one having actual experience in the manufacture of No. 12s let me know as to the normal production from 100 pounds gross weight of cotton; is it actually as low as 85 pounds or does it average 89 pounds or more?

Bum Weaver.

#### Answer to "R. A. C."

Editor:

In answer to R. A. C., will say his informer is correct. It is an undesirable fact that spinning or traveler rings are perfectly round. To tell the truth, only a very few are perfectly round, but the most of them are so nearly perfectly round that the "out of true" or defect is not visible to the naked eyes. Moreover, the imperfection can be ascertained only with the most delicate and accurate measuring instruments. Furthermore, there is actually in use quite a few rings which are visibly out of round.

The cause of rings being out of round is on account of their cooling off unevenly during the tempering process. It is a matter which has not been within the reach of manufacturers to remedy.

Practical.

#### Weavers' Knots

By A. B. Carter, Treasurer,  
Mill Devices Co., Gastonia, N. C.

Textile men throughout the entire country have discussed the weavers knot for years. However very few of them really know just what the weavers knot is for they have never taken time to go into details and thoroughly compare the weavers knot with the regular spoolers knot.

About four years ago the large mercerizers began to demand the weavers knot in certain orders of mercerized yarn. This yarn was considered special high grade fabric. Recently all mercerizers have demanded weavers knots in their yarn purchased from combed yarn mills. Since this occurred knitters now readily see the advantage of this particular knot and universal demand it in all yarn used.

The formation of this knot being different from the regular spoolers knot readily works in fine weaving and knitting machines. The regular spoolers knot is formed all on one side of the thread, which makes weaving and knitting very difficult on account of this lump on one side catching on the reed or needle. The weavers knot is formed around the body of the thread, the thread dividing the body of the knot. This allows it to go through the reed or needle without being caught.

Very elaborate tests have been

made along this line by weavers and knitters. One weaver tied fifty weavers knots in one piece of yarn about 4 inches apart and alongside of this fifty knots of the regular style. This yarn was put into the loom and woven in the cloth with careful record kept of the results. After the cloth came from the loom it was found that every weavers knot went through the reed without a break and there was no defect in the face of the goods, while 50 per cent of the regular knots broke going through the reed and had to be retired, which of course caused defects in the goods. This can readily be seen is quite an advantage from a standpoint of production as well as perfect goods.

Every breakout in the loom causes the loom a stop which can only be accounted by careful timing, but the results of this test plainly show that yarn tied with weavers knots eliminate loom stoppage and produce more perfect on knitting machines. All knitters will readily make the statement that 50 per cent of the knots tied in the regular way will cause a hole in the fabric, while tests have shown the weavers knot to go through the knitting machine with no defect whatever.

Most mill men would think that this applies mostly to fine yarn but this is an error. Coarse yarn of course makes a heavier knot than fine yarn and regular knots tied in coarse yarn produce a lump on the side of the body of the yarn which causes trouble invariably. Mills using 12s to 20s for weaving purposes should insist on the weavers knot for their warp yarn. It is extremely hard for the mill man to realize just the advantage of this weavers knot until he has tried out a set of warps and sees the results in his own mill.

Manufacturers using single yarn have been at quite a disadvantage along this line because it is almost impossible to tie the weavers knot in single yarn by hand. However, there is on the market today a hand knoter known as the Boyce Weavers Knotter sold by A. B. Carter, who is treasurer and general sales manager for the concern. The office and factory is located in Gastonia, N. C.

This machine ties the weavers knot in single yarn as rapidly as it does in two ply, according to the makers, who state mills throughout the country could produce the goods at a much lower cost by the use of this machine.

The Boyce Weavers Knotter has been used in Gaston County for the past two years by the fine yarn mills, both on single and ply yarn, and they report efficient results. The machine has passed experimental stage and has now established record which makes it a standard machine in these fine yarn mills.

The company has a service department which goes into details as to each mill's particular requirements. This gives the mill the advantage of getting acquainted with the machine and also gives them the aid of these experienced men in overcoming and adjusting the requirements of each and every mill.

## Improved Loom Harness

Mill after mill on print cloths, sheetings, drills, colored goods, denims, as well as on all classes of fancy weaves in cotton, silk and worsted goods, is equipping looms with our "Duplex" flat steel harness.

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Note: Our loom harness is shipped out completely assembled and ready for drawing your warps in plain or fancy weaves, or heddles can be assembled by you on the frames at your mill.

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Leno Reeds  
Leno Reeds  
Combs



FIG. 27

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Patent Steel Frame

Canvas Mill Truck

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## Commerce Department Offers Trade Advantages

STRANGE as it is, the textile trades do not appear to be turning a hand to help Secretary of Commerce Hoover and Dr. Klein, director of the Bureau of Foreign and Domestic Commerce, to persuade Congress to provide the moderate amount of money needed to complete plans laid out several years ago to increase the value of the bureau to the textile industry, says William Whittam, well known cotton goods merchant, in an article in the New York Commercial. This is all the more surprising because of the foreign service of the bureau is the child of textiles. Every division, producers of fibres, spinners, weavers, knitters and distributors of yarn and fabrics as individuals and as organized groups, worked very hard to bring Congress to see that expert investigation under Government auspices of foreign methods of manufacturing and merchandising fabrics, etc., would be of great value to an industry then suffering from paralyzing depression.

These efforts were more than justified, for, on the heels of a report on the British artificial silk industry, prepared by one of the Special Agents appointed after the first modest appropriation, the first plant for spinning this, then comparatively new synthetic fibre, was erected in the United States, and this factory proved to be the beginning of the most amazing development in the textile production the world has ever witnessed. Lay that to the credit of the textile activity of this government progeny of textile effort. Then add the shifting of America from the tail end of the procession of nations exporting textile manufacturers to second place, miles ahead of the third.

#### Results of Two Men's Efforts

These results came from the work started by but two men on textiles in the foreign field, with not a man trained in any textile trade in Washington to supplement the work at home. Since those early days the several commodity and other divisions of the bureau have brought surprising benefits to every division of American productive effort.

Our exports of silk and artificial silk fabrics, hosiery and garments have become as much of a surprise to the foreign consumer as they are a puzzle to the European producer. And so this story is written to tell the leaders of the textile and other industries of some of the things brought to pass by the bureau which have done so much to make America the leading exporting and manufacturing nation of the world. Nor is it to be overlooked that the bureau, cooperating with the Department of Agriculture, has vastly strengthened the position of the United States as first among the world's exporters of agricultural products. This bureau, child textiles, was long since adopted by the whole family of American producers, and so this problem is placed before that family for solution.

If one of the divisions of a business in which you are a stockholder showed a return of more than 17,000 per cent you would be delighted. If the board of directors were shown by the manager of the division that a modest increase in the investment would yield still greater profits and that the increase was likewise necessary to bring the branch to the point of reasonable promptitude in attending to the details of its affairs, you would expect the board to snap at the chance. Well! that is precisely what the House of Representatives, your board of directors of the United States, refused to do when it turned down the request of the Bureau of Foreign and Domestic Commerce for an increase in appropriation, though still very modest, to enable it to conduct its work efficiently and to enter other foreign fields which if not cultivated by America will be tilled and harvested by others.

#### What the Bureau Does.

But, some will ask: "Just what is this Bureau of Foreign and Domestic Commerce?" Those who have acquainted themselves with the scope of its work, no less than those who helped to lay the foundations for it are apt to make the common mistake of assuming that everyone the bureau stands ready to aid knows all about it. The majority do not, despite sustained and well directed efforts to put the information within the reach of all. Professor Swenson, New York University, in his book, "The National Government in Business is succinct, as: "The Bureau of Foreign and Domestic Commerce acts as a clearing house of information regarding foreign commercial conditions, methods of competition, tariffs, customs, regulations, shipping laws, construction projects and opportunities for the employment of American capital and requirements and methods of doing business. The information is secured through consular officers, commercial attaches, trade commissioners and special agents, the investigators of the bureau are present abroad studying daily developments judging tendencies, supplying information defending American interests, promoting American enterprises, smoothing out difficulties and removing obstacles wherever they appear.

#### Disseminate Trade Data.

"Working in close co-operation with the foreign staff is the bureau organization in the United States, disseminating not only the facts gathered abroad but also the great amount of other data available in Washington." And, the professor further observes: "The functions of government are not wholly political they are economic whenever the general welfare counsels collective action." What the bureau proposes to do with the increased appropriation the House denied, is not, in the language of Woodrow Wilson: "equally possible under equitable

conditions to optional association."

The House of Representatives was shown that an expenditure of \$3,000,000 of the taxpayers money brought more than \$500,000,000 worth of business into the country which paid over \$7,000,000 of cash into the Treasury of the United States as taxes. That is the kind of enterprise which Congress after Congress refuses adequately to support. Congress was asked for an additional \$610,000 and refused it, just as some of their predecessors would have declined to pay Russia \$7,200,000 for the 580,000 square miles of Alaska in 1867. One wonders what Canada would pay for that bargain today.

It will aid to a clearer understanding of the situation to keep in mind that until 1914 American trades consisted in greater part of the raw products of the soil while today farm and forest contribute less than half the outgo, factories supplying the larger share.

Now, every old hand in the international trade game will agree that "there needs long apprenticeship to master the mysteries of world trade." Likewise, those who have served their apprenticeship and become master traders will tell you that there is a lot of truth in the old Chinese adage which says: "if a little does not go much cash will not come."

#### Plain Fine Goods Featured in Trading

New Bedford.—Contract business has figured but little in the fine combed goods market this week, most of the trading being done in small lots for spot delivery. No change of prices has been brought about by the week's activity and on the whole the market has been very quiet, although New Bedford manufacturers report the actual volume of goods sold during the past week has increased considerably and the prices remain unchanged. Interest in the plain styles has slackened according to New Bedford mill men and the present trend is toward the semi-fancy and novelty constructions.

The silk and cotton mixtures have been very quiet recently. Interest centers around the plain constructions although there is considerable demand for fancy and novelty tussahs. Quotations remain unchanged because there is very little buying in quantities large enough to bring about a revision of prices.

Less interest in broadcloths has been noticed in the market this week. Buyers seem to be in no haste to fill their requirements. Second hands sold the 128x68s all combed construction at 21 cents, but it was difficult to find goods for spot delivery from first hands at that price. Some reports of contract business put through at 21½ cents were heard, but most mills refused to take business at that figure.—Journal of Commerce.

## Mildew in Yarns and Fabrics

THE problem of damage to cotton goods from mildew was very interestingly discussed by F. Summers in a recent lecture before the Oldham Cotton Mill Managers' Association, of Oldham, Eng. In his remarks, Mr. Summers stated that the serious nature of the mildew trouble needed no emphasis from him or anyone else—it was realized by everyone connected with the industry. The trouble was brought home by the hundreds of cases of serious damage reported at every stage, from the raw cotton to the finished fabric, year by year. In many of these cases of damage, the persons who were the sufferers found it impossible to account for the damage, the utmost care taken at every stage of spinning and manufacturing had not been sufficient to prevent goods from becoming mildewed. In conditions of uncertainty like that there had always been a tendency for the person who suffered, to look for someone else to put the blame on. In the case of finished goods and fabrics delivered in places like the East, the customer put the blame on the shipper, the shipper on the manufacturer, and the manufacturer on the spinner. As the spinner had no one else to put the blame on, the result was there had been a certain amount of confusion. The object of his lecture was a three-fold one. First, it was to give an accurate survey of the mildew trouble as it affected the cotton industry; secondly, to try and eliminate a good deal of uncertainties by showing them how, when and where the mildew made its appearance, and, thirdly, he wanted to give them a slight indication of the possibilities in the future of controlling the trouble.

They might think he was starting in the wrong way and that he ought to start by telling them how to get rid of it. A survey of that kind, however, was necessary. They could not get reliable statements of what the mildew trouble was and how best to meet it from technical handbooks. The reason was a peculiar one. There had been no scientific work of any importance on that subject until it was taken up by the Shirley Institute, for about 50 years. In 1879, William Thompson published in Manchester, his handbook on sizing and mildew in cotton goods. It was a very good book as far as it went, but most of the statements in the book were based on scientific work carried out a long time before people were really able to deal with mildew, and the consequence was that statements were put in the book, based on what he termed, valueless information. Mr. Thompson's treatment of the problem in cotton goods had been copied from one book to another, and in a book only published last year as a last word on textile fabrics, Thompson's account of the problem stood there as it did in 1879. As a matter of fact a certain amount of work had been done on the problem and they were really in a stronger position. To understand, however, what it

meant to the cotton industry he would like to give what was really a lesson in botany. They would find that absolutely necessary for a clear understanding of the problem.

Mr. Summers then explained by lantern how that mildew was a plant growth and he corrected a misunderstanding that the mildew was one thing. There were really scores of different mildews and each one was different from all the others and needed special treatment on that account. The three principal factors affecting the growth of mildew were temperature, humidity and suitable food. Taking these in order, it was shown that mildew on the whole, grew best at temperatures commonly employed in spinning and weaving. They grew at temperatures near those of cold storage and also at temperatures as high as 100 degrees. There was, therefore, little prospect of preventing their growth by controlling the temperature.

With regard to humidity, the lecturer showed that mildew growth in cotton goods containing 8 per cent of moisture was unlikely, though not impossible. If the moisture content rose, even slightly above that, growth could then take place more rapidly. Precautions must be taken in storing yarn to ensure dryness and good ventilation. If conditioning yarn or cloth prior to bleaching, mildew was easily set up owing to the wetness of the goods.

The food of mildews was described and it was shown that mildew could feed on substances such as starch and gums, which were commonly employed in sizing and finishing, and also upon the cellulose substance of the fibre itself. In the first place it was shown that mildew often infected the raw cotton in the boll after attack by insect pests. It thus went through the processes of ginning and baling, and arrived at last at the mill. Thus mildew in yarn could be due either to that primary infection or to infection from the dust of the mill. Infection was shown to have been traced through the yarn to the grey cloth. Bleaching and mercerization destroyed that initial infection but goods so treated could become infected later from the atmosphere. Mildew made yarn and grey cloth discolored and streaky owing to the color of the body of the fungus. The grey cloth might also be spotted owing to some by product made by the fungus when feeding on the size. Other industries had done a great deal more than the cotton industry to get rid of the trouble, but that was because the cotton trade had not, until quite recently, scientifically investigated the subject. The only methods he could recommend were methods of what he might call sanitation. They must thus destroy the mildew if they could and create conditions under which it could not grow. Nappy cotton was more liable to mildew than finer cotton.

# 3

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## The Breton Minerol Process

MUCH interest was created by the testimony given at the recent meeting of the Operating Executives of Georgia relation to the use Breton Minerol Oil on cotton. It appeared that a number of Georgia mills had been using the process for more than a year with good results.

The oil is sprayed upon the cotton in the hopper with a device shown herewith. The manufacturers advise using in 2-10 of one per cent for the first two weeks and then increasing the percentage gradually, but never going above 1 per cent, that is above 1 pound of oil per 100 pounds of cotton.

Mills making colored yarns in Georgia testify that it does not injure the dyeing of light shades or sulphur colors and naturally aids bleaching.

It is claimed that the oil adds about one per cent to the yarn and also holds in the yarn about 1 per cent of fibres that would be thrown off, thereby gaining 2 per cent from the use of the oil.

The machinery is said to be cleaner, the spinners run more sides and the yarn looks better, and the appearance of the room improved.

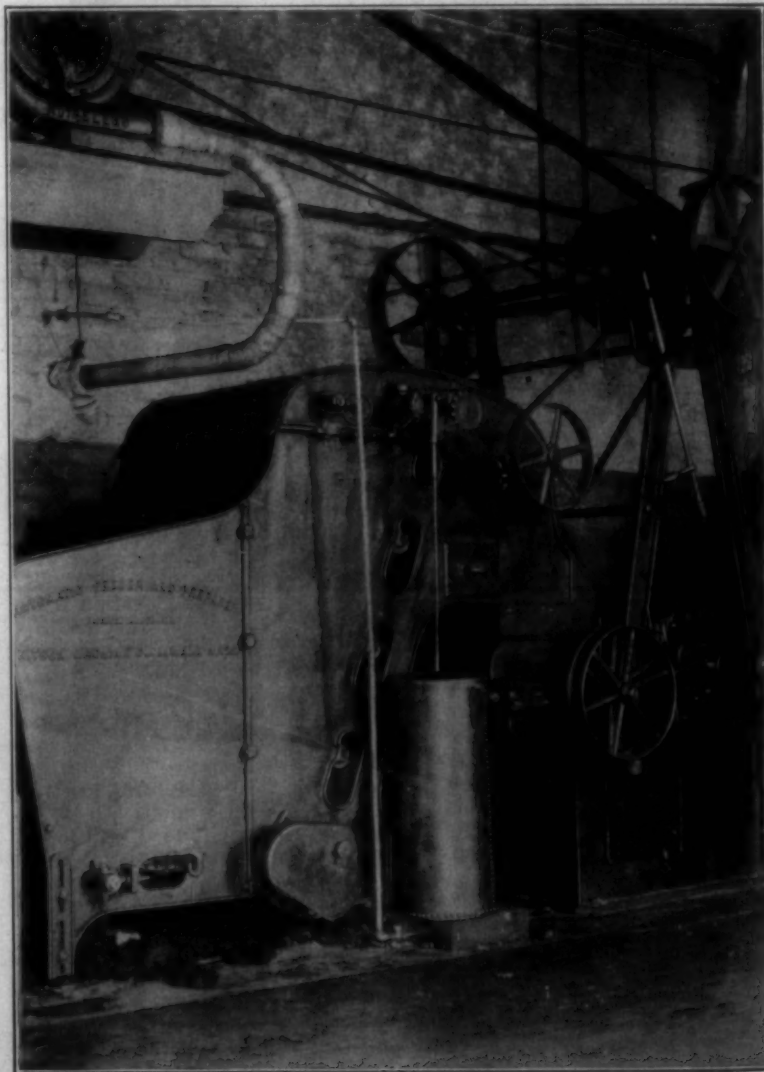
Borne Scrymser Company are now in position to furnish the complete spraying equipment for \$125 delivered and the price of the oil is 13 cents per pound F. O. B. factory.

The following letter from Borne Scrymser Company to David Clark, Editor of the Southern Textile Bulletin gives additional information about the use of the Breton Minerol Process.

"In reference to our conversation covering the Breton Minerol Process. We are writing you the following:

"As you are aware we have up to the first of the year localized this application to the state of Georgia in order that we might carefully watch its development and prevent errors in its application being made and therefore misunderstandings arise as to its value to the cotton spinning industry. We have successfully passed through this test stage and believe that there is a distinct interest and advantage in our process to the manufacturers of cotton yarns and fabrics.

"Briefly, the Breton Minerol Pro-



Installation of Sprayer in Opener Room.

ness is applying to cotton the lubrication that will allow each and every fibre to act independently through the cleaning, drawing and twisting process. In form this lubrication is similar to that provided by the natural constituents on the fibre and is designed and does assist them in completing their function.

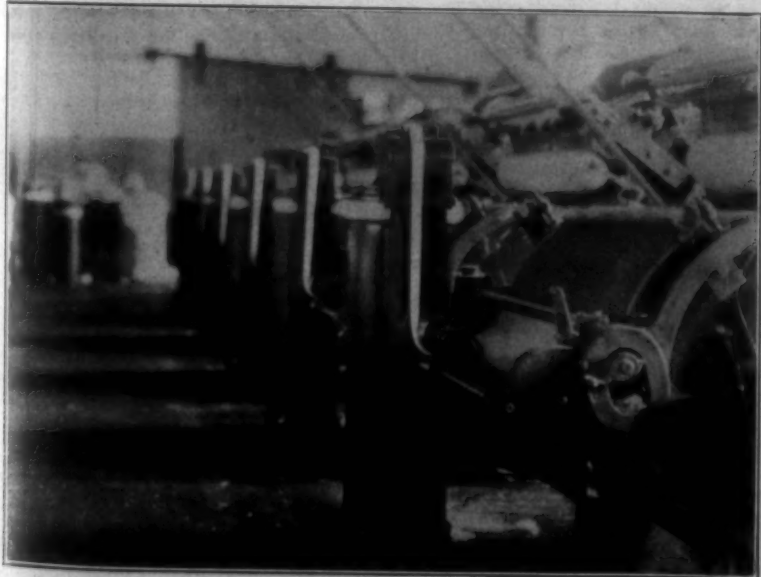
"Our process is not one of humidifying, as we see it, as you know oil and water are entirely opposite and different in their action and therefore the best conditions of

fly is held down to a point where it practically distributes the good cotton which otherwise escapes into the waste is carried along into the sliver from the card, and the shorter fibres which are frequently also carried along are retained in the top clearer waste and a distinct gain is retained in the actual weight of cotton processed at this point.

"The subsequent processes of drawing and spinning are facilitated by the mobility of the fibres in respect to each other, producing a



A Five-Minute Exposure Showing Absence of Fly in Card Room.



Oil Treated Stock in the Card Room.

humidification do not interfere with our process but really assist it to produce the best results.

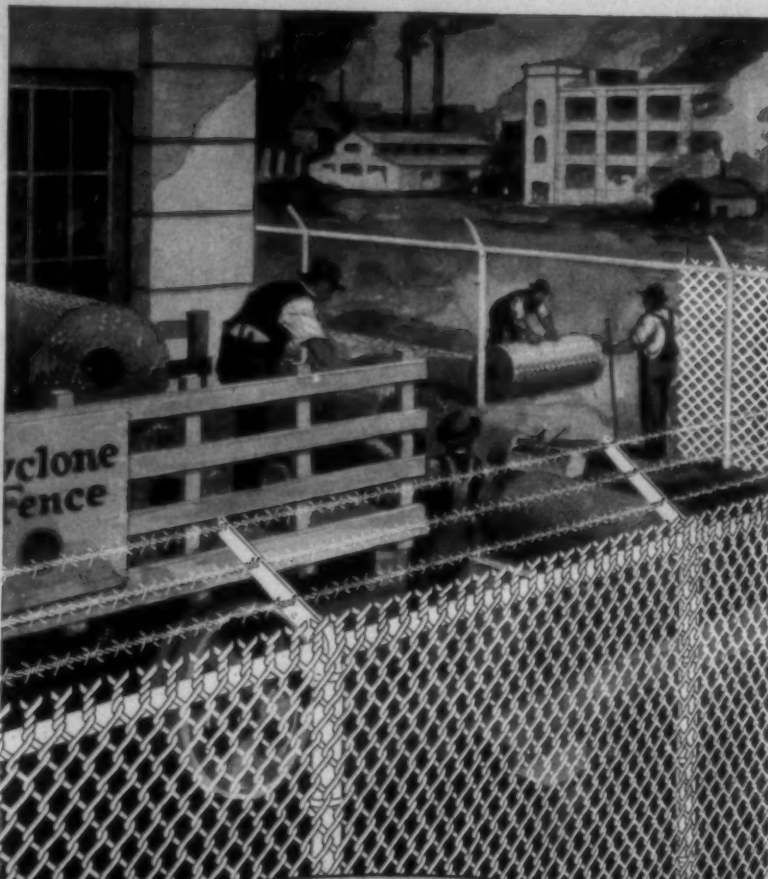
"Breton Mineral Process is applied is applied to the opener picker by a special device whereby uniform and proper distribution of the Breton Mineral on the fibre is obtained.

"Consensus of opinion is that in passing through the picker the cotton cleans easier because of the presence of Breton Mineral, which acts to soften the foreign matters somewhat so that they are more easily detached from the cotton. In the carding process the customary

more even yarn, free from the fuzz so common where yarns are spun and static electricity exists.

"Our process, as you will notice, is fundamentally an improvement on the cotton spinning conditions and we have taken steps to cover this process by patents, which are now pending.

"We appreciate very much your personal interest in this matter and will be glad to give you any further information as it develops or elaborate on what we have covered in this letter should it not meet with your needs."



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D. H. HILL, JR.  
JUNIUS M. SMITH

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Associate Editor  
Business Manager

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Contributions on subjects pertaining to cotton, its manufacture and distribution, are requested. Contributed articles do not necessarily reflect the opinion of the publishers. Items pertaining to new mills, extensions, etc., are solicited.

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## Need of Cotton Goods Statistics

A MEETING of representatives of the leading textile associations will be held in New York within a short time to consider the advisability of securing monthly statistics giving production, stocks and other information relative to the principal lines of cotton goods. If sufficient support is given the idea, the manufacturers will ask that the Department of Commerce compile the statistics.

The Department has already intimated that it will be willing to undertake the work provided there is sufficient demand for it and it is expected that a formal request will be made to the Department after the conference in New York. In fact, the Department of Commerce took up the matter of monthly statistics with the mills a year or so ago, but the matter was dropped because most of the mills seemed to oppose the idea.

At present, manufacturers of cotton piece goods have no statistics on which to form market opinion or to serve as a guide in regulating production except the regular cotton consumption figures, the biennial census of manufacturers, the regular export and import figures and Government crop reports.

We believe that accurate monthly figures showing the production and stocks of cotton goods, and possibly sales, would prove extremely valuable in eliminating much of the guess work on the part of manufacturers. It may not be necessary to have reports from all of the mills providing a representative number in the East and the South will furnish data regularly.

In times past, lack of accurate information on production, stocks and sales has caused very heavy over-production of certain lines. Mills have had no way to estimate the amount of goods going to the markets and the accumulation of stocks. Consequently the markets have often become clogged with certain lines and the whole industry has suffered.

For example, it has been estimated that in 1923 the cotton mills of the United States produced from 1,500,000,000 to 2,000,000,000 square yards of cotton piece goods in excess of consumption and thus consumed almost a million bales of cotton in producing goods for which the demand had already been fully satisfied.

Government figures show that the per capita consumption of cotton shows little variation from year to year. In 1924, the per capita consumption of cotton piece goods was 58 square yards, while in 1923 production had so increased that 72.5 square yards were available for consumption. There was in 1923 a per capita production of at least 12 square yards greater than the per capita consuming capacity. Certainly a large part of this over-production could have been avoided had the manufacturers had access to monthly statistics showing production and stocks.

Changing conditions in the textile industry make it extremely important that producers have as much information as possible relative to the markets in which they sell. The old idea of going it blind has more than once resulted in disaster. More intelligent methods of distribution are becoming more and more necessary and accurate data relative to production and consumption would serve as a very valuable basis for

estimating the production on various lines.

The Textile Division of the Department of Commerce is steadily increasing its usefulness to the mills and the practical value of its activities are becoming more apparent each year. We believe that the mills will make a serious mistake if they fail to make the most of the opportunity now offered to secure information that cannot fail to serve as a valuable aid in regulating their output.

## Style

VERY liberal cash prizes are being offered this year by the Carolinas Exposition for the best dress designed and made by any girl or woman in the Carolinas, the winners to be selected at the Exposition in September. The idea is to renew interest in the old-fashioned art of making dresses in the home.

We wish the Exposition officials had added the stipulation that all dresses competing for the prizes should be fashioned from cotton. Any movement to help make cotton stylish would help the mills keep busy. Of all the various reasons that have been advanced to explain why the mills are not operating profitably, we believe that one of the most logical is that cotton goods are no longer stylish. Style is one way of expressing demand for whatever goods are stylish are always in demand.

One of the government statisticians recently estimated that whereas 20 years ago it took almost ten yards of gingham to make a dress, not more than three and one-half yards are required for today's fashions. After viewing some of the spring models, we are inclined to think the estimate is a little bullish at that. Not many years ago, almost every woman, whether of high or low degree, owned at least three white cotton undershirts. Where are they now? Gone where all the old styles go and replaced by a single flimsy garment of silk or rayon.

What is good for the oculist is not always good for the mills.

While we may never again view the counterpart of the old-fashioned sister who preserved her modesty with several layers of petticoats, if the style makers would lend a hand, and decree cotton dresses, we would find a very encouraging increase in the consumption of cotton goods.

## North Carolina Is Diversifying

FOR the past several years diversification of output has been urged as the greatest need of the textile industry in the South. The subject has been almost continually discussed by everyone interested in the welfare of the mills. It has been generally agreed that the mass production of the coarser cotton fabrics should give way to a greater production of fine goods and novel-

ties and that the yarn-mills should weave and finish a much greater percentage of their production.

It is apparent that the diversification seeds have been sown in fertile ground and we believe that the trend toward greater variety of output has developed more rapidly than is generally recognized. Of course the South has yet a long way to travel in this direction, but a good start has already been made.

North Carolina is taking the lead in this newer phase of textile development in the South. Since the first of the year, seven new weave mills have been organized in North Carolina, one silk mill has been put under way and a second proposed, a plush fabric plant has been organized, a plant to manufacture silk ribbons gotten under way and three new bleaching and finishing plants have begun construction. We consider this a really remarkable showing, especially in the face of prevailing market conditions which certainly have not been such as to invite new mill construction.

North Carolina is gradually getting into the production of fine and fancy goods and is building a finishing industry that will eventually develop into tremendous proportions. The State is setting a fine example to the other Southern States as to the possibilities of textile diversification.

## Texas Prays for Rain

THE seriousness of the prolonged drought in Texas is reflected in news dispatches from Houston stating that special prayers for rain are being offered in many of the churches. Business men report that the long dry spell is beginning to be felt by the loss of sales, especially from rural customers.

The reports from the farming sections state that many farmers are forsaking their farms and flocking to the cities and nearby oil fields to find work.

Such news serves to emphasize the fact that those who believe that Texas will be able to produce anything like a normal cotton crop this year may have to revise their opinions.

Texas has never produced a large crop without good winter rains and this year there has not only been a very dry winter, but the drought has extended into spring and no relief has as yet been forthcoming.

## Cloth Exports Gain.

Exports of manufactured cotton products, particularly cotton cloths, showed a sharp gain during March, according to figures released by the Department of Commerce. Total value of exports was placed at \$14,755,000, compared with \$9,876,000 during the corresponding month last year. Of this amount \$8,110,000 represented exports of cotton cloths. This compares with exports of \$5,546,000 of cotton cloths during March, 1924.

## Personal News

A. M. Stack, of Monroe, N. C., is now located at Lowell, N. C.

J. E. Eudy has returned to Ellerbe, N. C., as superintendent of the Ellerbe Knitting Mills.

March McQuiren has resigned as overseer spinning at the Bibb Manufacturing Company, Porterdales, Ga.

David Clark, editor of the Southern Textile Bulletin, has returned from a week's trip to New York and Boston.

W. R. Bridgeman has been promoted from fixer to second hand in weaving at the Mayflower Mills, Cramerton, N. C.

F. C. Todd, formerly of Gastonia, N. C., has accepted a position with the Rockyface Spinning Company, Stony Point, N. C.

J. C. Brannan has been appointed overseer spinning, spooling, twisting and winding at the Bibb Manufacturing Company, Porterdales, Ga.

Robert T. Gossett, formerly of Whitmire, S. C., has become overseer spinning at the Franklin Process Spinning Mills, Fingerville, S. C.

T. A. Bland has been promoted from second hand to overseer of weaving, quilling and slashing at the Mayflower Mills, Cramerton, N. C.

George W. Johnson has resigned as overseer weaving at the Fountain Mills Tarboro, N. C., and accepted a similar position at the Cockran Mill, Cockran, Ga.

D. G. Floyd, formerly second hand in carding No. 1 and 2 at the Lumberton Cotton Mills, Lumberton, N. C., now has a similar position at the Hannah Pickett Mills, Rockingham, N. C.

J. T. Jordan has resigned as overseer carding at the Osage Manufacturing Company, Bessemer City, N. C., to become chief engineer at the Rosslyn Ice and Packing Company, Rosslyn, Va.

Sam Ingram is night overseer carding at the Victoria Mills No. 2, Rock Hill, S. C., and not at the Wymojo Mills, as reported last week. W. J. Hamilton is night carder at the Wymojo.

### New National Dye

As a result of extensive research on the part of the National Aniline and Chemical Company, Inc., that company has succeeded in developing a new direct dye, never before produced, which has been designated National Solantine Red 8BLN. This dye is of a new chemical composition, and its characteristics distinguish it from all other dyes of its general class. It has a distinctive fastness to light. It is a direct color particularly intended for cotton and

is applied in the usual manner for such dyes, in a slightly alkaline bath in the presence of Turkey Red Oil or soap, or for heavier shades, with Glauber's salt or common salt. As a self color, National Solantine Red 8BLN produces various shades of red, pink and rose, dyes level, and possesses general good fastness to light, perspiration, washing, chlorine, alkali, etc.

Owing to its excellent solubility and consequent penetration, it is recommended for dyeing closely woven fabrics. This new dye may be used in combination with other Solantine dyes for the production of compound mode shades. It does not stain animal fibres and it will therefore prove useful in the dyeing of union fabrics where two colored effects are desired. It possesses unusual fastness in light shades.

### To Classify Cotton at Houston

Houston, Tex. — Houston will be the headquarters of the Cotton Classification Board of the U. S. Department of Agriculture, which will handle cotton intended for tender on contracts of the cotton department of the Chicago Board of Trade. This announcement was made in a telegram from the Bureau of Agricultural Economics, to J. K. Dorrance, president of the Houston Cotton Exchange and Board of Trade.

At the present time, the certification of cotton intended for delivery on Chicago contracts is done at New Orleans.

### Dacotah Cotton Mills. Lexington, N. C.

22,752 spinning spindles; 650 looms.  
J. H. Mattison \_\_\_\_\_ Supt.  
E. F. Anderson \_\_\_\_\_ Carder  
C. L. Williams \_\_\_\_\_ Spinner  
W. T. Hall \_\_\_\_\_ Weaver  
J. L. Peninger \_\_\_\_\_ Cloth Room  
W. M. Calloway \_\_\_\_\_ Dyer  
A. L. Crissman \_\_\_\_\_ Master Mechanic

### Elmira Cotton Mills Co., Inc. Burlington, N. C.

10,608 spinning spindles; 651 looms.  
N. A. Gregg \_\_\_\_\_ Supt.  
J. W. Engle \_\_\_\_\_ Carder  
J. W. Engle \_\_\_\_\_ Spinner  
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### Merrimack Manufacturing Co. Huntsville, Ala.

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V. W. Lovill \_\_\_\_\_ Supt.  
G. W. Lehman \_\_\_\_\_ Carder  
P. B. Crouch \_\_\_\_\_ Spinner  
P. H. O'Neill, C. P. Baker \_\_\_\_\_ Weavers  
H. S. Price \_\_\_\_\_ Cloth Room  
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# MILL NEWS ITEMS OF INTEREST

**Thomasville, N. C.**—The Jewel Mills have amended their charter to increase the capital stock from \$250,000 to \$750,000.

**Shelby, N. C.**—The new Sheiby Cloth Mills have let contract to Michael and Biven, of Gastonia, for installation of electrical equipment.

**Marietta, Ga.**—It is reported that the Marietta Cotton Mills have been sold to Inman, Williamson and Stribling, of Atlanta.

**Rome, Ga.**—The additional capital provided by the \$200,000 issue of preferred stock by the McLin Mills, will be used to purchase spinning equipment. The mill now has 76 looms, but no spinning frames.

**Griffin, Ga.**—The Highland Mills have placed contract for additional humidifying equipment with The Bahnson Company, Winston-Salem, N. C., this equipment to be installed in the card room.

**Covington, Tenn.**—The O'Cedar Mills have completed installation of mop warping equipment and mop yarn dyeing equipment made by the Cocker Machine and Foundry Company, Gastonia, N. C.

**Shelby, N. C.**—The Ora Mills have let contract to Michael and Bivens, Gastonia, N. C., for installing electrical equipment including lights, the installation to cost about \$10,000. J. E. Sirrine & Co., Greenville, are the engineers.

**Greensboro, N. C.**—The Proximity Manufacturing Company, has installed a second continuous warp indigo dyeing equipment made by the Cocker Machine and Foundry Company, Gastonia, N. C.

**Concord, N. C.**—Rapid progress is being made on the building of the new shed at the Brown Manufacturing Company. When it is completed, the old weave room will be used for shipping, and additional equipment installed.

**Cedartown, Ga.**—The Cedartown Cotton and Export Company, has completed installation of direct pull electrical stop creels in connection with the linking warpers, the equipment being furnished by the Cocker Machinery and Foundry Company, Gastonia, N. C.

**Carthage, N. C.**—Colin G. Spencer, chairman of the committee from the Board of Trade, which is seeking to bring a cotton mill here, reports that \$65,000 of the \$100,000 to be subscribed locally as a condition in securing the mill has been subscribed and that an additional \$50,000 may be subscribed by Henry A. Page, Jr. The New England company interested is to subscribe \$150,000.

**Marion, N. C.**—The Cross Cotton Mills has let contract for building 25 new operatives' homes to the Gaston Construction Company Gastonia.

**South Boston, Va.**—The Halifax Cotton Mills, Inc., have placed contract for new humidifier equipment with The Bahnson Company, Winston-Salem, N. C.

**Columbus, Ga.**—The Swift Manufacturing Company, has purchased 36 new Draper looms for replacement purposes.

**Graniteville, S. C.**—The Graniteville Manufacturing Company, has retained E. S. Draper, landscape architect, of Charlotte, for improvements to the mill village.

**Ellerbe, N. C.**—The Ellerbe Knitting Mills, which were idle the greater part of last year, have resumed full time operations. It is planned to install a number of additional knitting machines within a short time. J. E. Eudy is superintendent.

**Lincolnton, N. C.**—The Meiville Mills have recently installed the Cocker combination linking and balling warper with direct pull electrical stop creels manufactured by Cocker Machine and Foundry Company, Gastonia, N. C.

**Bessemer City, N. C.**—J. A. Abernethy, receiver for the McLean Manufacturing Company, Bessemer City, N. C., will offer the plant for sale on May 30. The mill has approximately 6,000 spindles and 156 looms. It was operated under lease for a year by R. L. Goldberg and associates, who did not renew the lease when it expired recently. The plant is now idle.

**Greenville, S. C.**—Contract for the erection of the addition to the Southern Franklin Process Company, was let to the Gallivan Building Company, of this city. The addition will be 140x60 feet and will cost \$40,000. Machinery to be installed includes 4 dyeing machines, steam and electric power plant. When complete, the capacity of the plant will be 15,000 pounds daily under the Franklin system of dyeing.

**Greenville, S. C.**—The auxiliary plant of the Judson Mills, being established in the building formerly occupied by the Shambow Shuttle Company, will be put in operation about October 1, according to B. E. Greer, president of the mill. The mill will weave silk and mixed goods, employing about 60 persons. Contract will be let at once for twelve operatives homes near the plant.

**Chattanooga, Tenn.**—There is a strong probability that group of Eastern textile interests headed by Nathaniel F. Ayer will establish a large spinning, weaving and finishing plant for cotton, silk and rayon fabrics, it was learned today. Mr. Ayer, who is treasurer of the Nyanza group of mills and the Cabot Manufacturing Company, spent three days in the city, leaving Tuesday for the East.

The purpose of his visit was to attend a meeting of directors of the National Yarn Processing Company,

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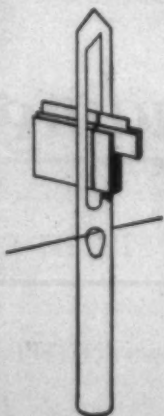
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of which he is a director and also to look over the field, with a view of establishing one or two unit plants in the South. The plant would represent an initial investment of several million and would probably be chartered under a separate name and operated independently.

**Fingerville, S. C.**—The capacity of the Franklin Process Spinning Mill will be increased by 12,000 spindles, orders having been placed for 2,300 spindles in addition to the 10,000 purchased some time ago. No additions will be built to the plant, but 12 new cottages will be built to take care of the larger force of workers. Contract for the homes has been let to the Fiske-Carter Construction Company, Greenville.

**Durham, N. C.**—The Yarborough Mills, which were organized here recently, expect to begin construction on the plant in May. The mill building will be one story, brick, 82x140 feet. It will be equipped with 100 looms for making novelty cotton goods. The company expects to place orders for the following equipment within a short time: Baling presses, beaming and warping machinery, loom harness, heddles, cloth room machinery, shuttles, slasher, filling winders, humidifying system and an 80 H. P. boiler. E. S. Yarborough is treasurer and active manager.

**Spartanburg, S. C.**—Purchase of the Model Mill and such real estate as properly belongs with the textile plant of the Textile Industrial Institute and mill, located near Saxon mills, a mile west of Spartanburg, by the Powell Knitting company of Philadelphia, second largest concern of its kind in Philadelphia, was announced Monday by A. M. Law and company, who negotiated the sale.

The Philadelphia Knitting company in establishing its interests in Spartanburg is making this city its Southern headquarters. Its plans for the immediate future include the erection of from 35 to 40 houses to care for the 150 operatives who will go to work as soon as the mill has been made ready for operation. Hosiery of a medium grade will be manufactured.

Ultimate expansion of the mill here to employ 500 operatives is contemplated by the new owners, it was stated in the announcement of

the purchase. The owners are expected to take charge at an early date at which time plans now being formulated for altering and making additions to the plant will be carried out.

During a recent visit to Spartanburg, Mr. Powell stated that if the

property were purchased, he would commence the erection immediately of 30 to 40 modern operatives' houses and make considerable improvements to the property. In the beginning about 150 employees will be used but eventually the company will employ 500.

## May Change Cotton Standards

Washington. — Dr. H. C. Taylor, chief of the Bureau of Agricultural Economics, Department of Agriculture, will sail Saturday on the Leviathan, to attend a conference on universal cotton standards to be held in London, May 20, it was learned at the department today.

Information concerning the date of the conference was received here today by cable and immediate arrangements were made for Dr. Taylor's departure. William C. Campbell, of the division of regulatory work, Department of Agriculture, and H. C. Slade, cotton standards expert, will accompany Dr. Taylor.

It is understood that European signatories of the universal cotton standards agreement, and a large number of American cotton manufacturers, exporters and representatives of American cotton growers, associations, and exchanges will be present at the conference.

European exchanges invited are as follows: Manchester, Bremen, Rotterdam, Ghent, Havre, Milan, Barcelona, and Liverpool, as well as representatives of the Federation of Master Cotton Spinners, Manchester.

The purpose of the conference, Dr. Taylor said tonight, is to discuss for modification that portion of the agreement which provides for an annual conference. At previous conferences, and in correspondence, the Liverpool exchange pointed to the annual conference as one of the objectionable features of the universal cotton standards agreement. It is expected at the London conference that this portion of the agreement will be modified so as to provide for a biennial instead of an annual conference.

Modification of the procedure of conferences and the changing of the contract, as it relates to the employment of arbitrators, are the other points that will be discussed at the London conference.

It is believed here that if the universal cotton standards agreement is modified at the London conference, in line with the above suggestions, Liverpool will withdraw objections and sign the modified agreement.

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## Want Fewer Yarn Numbers

Proposals to reduce the present number of yarn sizes with a view toward simplifying the problems of the underwear knitting industry will be discussed at the spring meeting of the Associated Knit Underwear Manufacturers of America, to be held at the Hotel Traymore in Atlantic City on May 15 and 16, according to an announcement just made by Roy A. Cheney, secretary. Representatives of the Southern Yarn Spinners' Association will confer with the knitters on this problem, which is occupying much attention throughout the entire industry.

The possibility of standardizing three or four sizes of yarn containers of such construction that they could be used in shipping yarn to underwear mills and reused in turn by the knitters for shipping underwear to their customers will be the topic at a preliminary meeting to be held on May 13. At this meeting representatives of the underwear knitters' association, of northern and southern yarn spinners' organizations, and of leading associations of retail and wholesale distributors will confer to consider various ship-

ping problems, taking up also the question of relative costs of fibre and wood shipping cases. Results of this meeting will be reported to the general membership later during the convention.

Accomplishments and plans of the advertising committee in the industry's national co-operative advertising campaign will be discussed at a special meeting of the committee on May 13, and a detailed report will be submitted to the general session on May 15. Also on May 13 officials of the U. S. Bureau of Census will confer with the knitters to discuss the feasibility of changing the present method of compiling industrial statistics with a view toward increasing the value of the production figures which are published monthly by the bureau for the guidance of the industry.

At a preliminary meeting of the standardization committee, to be held on May 14, reports submitted by Charles H. Hamlin, the association's research fellow, covering his work in conjunction with the U. S. Bureau of Standards will be considered. This committee will then prepare its recommendation which will be submitted to the general meeting on the final day of the con-

vention. Mr. Hamlin's report will deal with proposed standards and measurements for men's, boys' and children's ribbed and flat-knit union suits. His report on artificial silk, which is now being distributed to members, will also be studied in detail.

The general meeting will begin on Friday morning, May 15, with an address of welcome by Robert S. Cooper, of the Cooper Underwear Company, Kenosha, Wis., who is president of the association, after which various committees will submit their reports. At noon on Friday a nationally known speaker will address the knitters. Following the luncheon other committee reports will be heard and discussions will be in order. The annual banquet will take place that evening, for which an exceptionally interesting program of entertainment and addresses is being arranged. Following the association's consideration of the report submitted by the standardization committee on Saturday morning, the various groups representing different branches of the industry will meet to discuss their individual problems. These group meetings will comprise the concluding feature of the convention program.

## Australia Gaining in Cotton Culture

Under the encouragement lent by the British Cotton Growing Association, which is promoting the culture of cotton in the British Empire outside of India, Australia is forging ahead as a cotton producing country, having grown 12,500 bales in 1923-24 as against 31 bales in 1918-19. The industry in Australia is being developed and extended in a thorough manner.

Profiting by the bitter experience of the United States in regard to the boll weevil, the Australians plant their cotton annually, and after harvest all the bushes are turned off. Therefore weevils and other insects have very little chance of thriving. As a further precaution, no goods are permitted to be planted unless they are supplied by the Agricultural Department. Before issue such seeds are passed through a period of quarantine and are submitted to fumigation. Only the varieties which will produce the best staple are allowed to be sold.

It is estimated that some 250,000 bales (400 pounds each) of cotton the limits of the British overseas dominions, colonies and protectorates other than India, comparing

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## Crop Outlook for 1925

The prospect of repeating last season's crop, which was the largest since 1914, is unfavorable to date. Texas is without the moisture in the soil which is thought usually necessary for a full crop, the Southeast is backward and the survival of boll weevil is thought to be large. The price is about 25 cents and has been as high as 26½ cents in the past month. The cotton goods trade insists that higher prices will limit consumption, and the speculative element is wary of the market on that account.

The statistical position of cotton is strong, and with consumption increasing over the world there seems to be every reason to anticipate that the growers will receive a remunerative price for the new crop. Exports from the United States to the several countries in the period from August 1, 1924, to March 20, 1925, and for the corresponding weeks of the years 1923-24 and 1922-23, were as follows:

Exported to—	1924-25	1923-24	1924-25
Great Britain, bales	2,242,955	1,469,269	1,216,903
Germany	1,565,283	977,282	718,890
France	775,784	587,545	523,239
Italy	529,700	413,219	288,202
Russia	106,763	18,631	290
Japan and China	773,415	497,174	446,814
Others	663,564	466,344	493,017
Total	6,657,464	4,429,464	3,787,321

These figures indicate what the recovery of Europe means to the cotton-growing States, and why these States may be expected to play their part in making the United States prosperous.—National City Bank Letter, April, 1925.

Junior Home Economics Specialist  
Textiles and Clothing

Receipt of applications for junior home economics specialist (textiles and clothing) will close June 13. The date for the assembling of competitors will be stated on the admission cards sent to applicants after the close of receipt of applications.

The examination is to fill vacancies in the Division of Textiles and Clothing, Bureau of Home Economics, Department of Agriculture, at an entrance salary of \$4,860 a year. Advancement in pay may be made without change in assignment up to \$2,400 a year. Promotion to higher grades may be made in accordance with the civil service rules.

Applicants must qualify in either textile and clothing construction and selection, or the chemistry or physics of textiles.

The duties of the position are to "conduct investigations in connection with the optional subjects mentioned above."

Competitors will be rated on practical questions on the optional subject selected, a thesis to be delivered to the examiner on the day of the examination, and education, training, and experience.

Victory Yarn Mill.  
Gastonia, N. C.

H. G. Winget \_\_\_\_\_ Supt.  
J. M. Allen \_\_\_\_\_ Carder  
J. C. Hill \_\_\_\_\_ Spinner  
L. P. Lipe \_\_\_\_\_ Master Mechanic

## SUPERINTENDENTS AND OVERSEERS.

We wish to obtain a complete list of the superintendents and overseers of every cotton mill in the South. Please fill in the enclosed blank and send it to us.

1923

Name of Mill \_\_\_\_\_

Town \_\_\_\_\_

Spinning Spindles \_\_\_\_\_ Looms \_\_\_\_\_

Superintendent \_\_\_\_\_

Carder \_\_\_\_\_

Spinner \_\_\_\_\_

Weaver \_\_\_\_\_

Cloth Room \_\_\_\_\_

Dyer \_\_\_\_\_

Master Mechanic \_\_\_\_\_

Recent changes \_\_\_\_\_

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will be produced this year within with 79,400 bales produced in the cotton year 1918-19 and 173,730 bales produced in the cotton year 1922-23. India's output for 1923 was 4,209,000 bales of 478 pounds net. Egypt, which is now politically independent, produces annually in the neighborhood of 1,200,000 bales.

According to advices received by the Bankers Trust Co., of New York from its British information service, the extension of cotton growing within the British Empire today is chiefly concerned with the construction of new railways—mostly in the African colonies and protectorates.

The largest amount of the cotton grown in 1924 within the Empire outside of India was raised in Uganda, 129,000 bales; the Sudan came next with 47,652 bales; then Nigeria with 25,000 bales. The British West Indies produced 5,770 bales in 1922-23, the latest year for which statistics are available. This cotton, to a great extent, is what is known as Sea Island cotton, the longest and finest grown in the world.

The British Cotton Growing Association is endeavoring to develop the growth of cotton in Punjab, India, and some quite useful cottons are being grown not only on the farm of the association but by others interested in cotton production, and it is thought to be only a matter of time before an appreciable quantity will be produced.

Mesopotamia, which has come under British control only since the war, is already becoming something of a factor in cotton production. The output of 1923-24 was 3,300 bales as against 60 bales in 1920-21.

New Silent Chain Drive  
Book By Link-Belt

The new book on Silent Chain Drives for the Textile Industry, just published by the Link-Belt Company, is a most unusual one, in that the text matter consists largely of operating cost statements, voluntarily submitted by textile mill superintendents. These have been summarized in such manner as to make it easy for the busy executive to comprehend at once the advantage of the Silent Chain Drive in the Textile Mill.

Photographic reproduction of the successful application of the Link-Belt Silent Chain Drive to practically every type of machine in either the cotton, wool, worsted or silk divisions of the textile industry, are both numerous and instructive. Among the installations illustrated is one of twenty drives, aggregating 2,592 H. P., which were installed in 1902, and are still operating to the complete satisfaction of the owner.

The "Foreword" of this interesting and useful book contains a statement by a prominent textile mill engineer, which drives home the importance of the proper drive in modern power transmission in textile mills.

Copies of this book will be sent free to those interested upon application to the Link-Belt Company, Chicago, Philadelphia, or Indianapolis.

### Plan for Averaging of Cotton Purchases by Mills

**R**EALIZING from cotton mill experiences of recent years that shrewdness in purchasing raw material is probably more vital than technical manufacturing skill, in order to merchandise cloth at a profit, Stephen M. Weld & Co. have evolved what they term "a practice-proven plan for cotton manufacturers," by which they assure its followers, "an average price materially below that at which a given cotton crop is taken over for fabrication by manufacturers throughout the world."

"This plan," they declare, "does not pretend to find or even to seek the bottom—an effort the futility of which few will even question. The average price at which a crop, large or small, is floated into consumption cannot, in the nature of the case, very greatly exceed its actual worth; and consequently, if such average can be bettered, something of success is reasonably assured. It is the price peaks which must be avoided and the valleys of value which must assiduously be sought."

"This plan lays no claim to originality and presents no untried theory, but is based upon five years' experience on the part of an executive whose unwavering adherence to the principles herein set forth

has brought him safely through the most trying period which cotton manufacturers have experienced in a generation.

"For easy analysis, the various phases of the plan are presented separately:

"1. When prices for raw cotton and its products are in right relation, so that a reasonably manufacturing profit can be obtained by the simultaneous purchase of one and sale of the other, such profit should of course be secured for a period as long as can be covered by sound contracts.

"2. When raw cotton and product remain in rigid maladjustment, without material declines in the one or advances in the other and with no manufacturing profit available, both buying and selling operations should be conducted in a 'hand-to-mouth' fashion, that one's mill may be kept running with a minimum of loss or risk.

"3. When disparity between raw stock and product persists over a prolonged period, or when the conviction of its extended continuance gains firm hold upon the composite mind of the trade, or sometimes even, ere any actual maladjustment has arisen, the fear becomes general that presently it will occur, then the market is apt to become acutely sensitive, minor matters being given fictitious importance and fluctuations so extensive, sudden and unexpected taking place as

to upset the calmest judgment unless it be steadied by a clearly defined and predetermined course of conduct. It is at such times as these last above described that the plan herewith proposed would come into the most active operation, and it cannot fail to ameliorate materially the difficulties of the situation. Its details as applied to the conditions last outlined are as follows:

"A. In accordance with the clear intent of the plan as developed below, all purchases should be properly proportioned to one's consumption.

"B. A comparatively small purchase should be made on every sharp break—as 100 points or more in a few days; on a more extended decline—say, 200 points within two or three weeks—a somewhat larger purchase should be made; and on a yet greater shrinkage in value, perhaps 300 or 400 points within a month or two, a still more important purchase would be indicated. Of course, if within a few days, a break of 100 points should go further, additional and increased quantities of cotton should be bought on each succeeding 100 point decline; and a similar policy should be pursued with regard to declines occurring within the longer periods referred to. Also, purchases should be larger or smaller as the general market level is lower or higher; for instance, a break of 3 cents from 18

cents would be a proper occasion for a very much larger purchase than a similar break from 35 cents.

"The very essence of the idea is that the size of a purchase should be governed, first, by the level from which the break occurs, second, by the extent of the break, and third, by the sharpness of the break. These guiding factors are of importance in the order mentioned.

"Under no circumstances, however, should a mill go more than 90 days' supply net long, such balanced purchases as might have been made under Section 1, being, of course, left entirely out of consideration.

"C. Whenever the 90-day limit of accumulated net long stock is reached, or closely approached, the long load should be lightened a little on any advance similar in character to the declines above referred to; and if no such opportune advance occurs, further action should be withheld until the load becomes lessened by the process of consumption. This extreme caution would avoid seriously adverse results even in case of such long continued declines as occurred in 1920.

"That the merits of this plan may readily be appreciated, and its fitness for one's own problems clearly understood, it is desirable to study carefully the fluctuations in cotton during the widely varying and uncertain years since the war; and in its actual application, a daily market chart should be kept, that each



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action may be in complete accord with all previous ones and the whole scheme systematically and accurately carried out.

"The proposals presented, if faithfully followed, assure the avoidance of great loss and in the large majority of cases, even in periods adverse to the textile industry, they will result in a reasonable reward for executive and technical effort and skill. The plan outlined has been proved empirically over a period of five years and is quite possible of both mathematical and visual demonstration.

For instance, if across the face of a chart showing the daily fluctuations for any year a horizontal line be drawn through the point of average value, and another through the point of average price at which the hypothetical purchases called for by this plan would have been made, it will in every case be shown that the latter falls materially below the former. As a manufacturing client from west Carolina phrased it, "The average altitude of the valleys is bound to be less than the average altitude of the range." Upon that indisputable conclusion, the case may well be rested.

"The structure of the plan is based largely upon this fundamental fact that when uncertainty and uneasiness take hold upon the minds of men, the direction which they choose, or at least the distance to which they go, is rarely based on reason, and so is rarely right. Probably there are not many men in any sphere of human endeavor who have the determined patience faithfully to follow an idea of this sort, and it is indeed, for that very reason that it offers so great an advantage to those who can and will carry it out.

"To do so, it is obviously necessary to use the futures markets, those sensitive vanes of value which readily respond to every zephyr of opinion throughout the commercial world, and which, therefore, offer many opportunities that are denied the manufacturer who confines himself to transactions in spot cotton. Purchases of futures can at any desired time be transmuted into spots of the needed class and character, and when studious effort is made toward selecting periods of favorable spot bases for such transmutations, an added advantage is secured."

### Georgia Association To Meet May 11

Atlanta, Ga.—A comprehensive program covering vital problems of importance to the Georgia textile industry has been prepared for the annual convention of the Cotton Manufacturers' Association of Georgia, which will be held in Atlanta on Monday and Tuesday, May 11th and 12th. The program was announced by William M. McLaurine, executive secretary.

The meeting will be held at the Atlanta-Biltmore Hotel. The first session will open at 8:30 P. M., Monday, May 11th, and the vital subjects of legislation, cotton rules and reports, coal purchasing, and associ-

ation activities will be discussed with a view to reducing them to concrete form for presentation at the general session on Tuesday morning, at 9:30 A. M.

At the Tuesday morning session, following the usual preliminaries, George S. Harris, president, exposition Cotton Mills, Atlanta, will deliver the annual address of the president. Hon. G. L. Fossick, president and manager, Fossick's Statistical Bureau, Inc., Memphis Tenn., will discuss the business outlook.

Reports on the several committees meeting on Monday evening will be presented, the discussion leaders appointed for the several topics being as follows: Legislation, including child labor bill, part time schools, Children's aid bill, and Children's code, P. E. Glenn, John Porter, and Others; Cotton rules and reports, George S. Harris, Norman E. Elsas, and Others; Coal purchasing, R. H. Boykin, coal buyer for Cotton Manufacturers' Association of South Carolina.

This feature is expected to make the session one of the most profitable in the association's history, according to Mr. McLaurine. The concluding feature of the Tuesday morning session will be a roundtable discussion of ways in which the Association can be made of greater value, with sub-topics being considered as follows: "Labor Turnover", leader Norman E. Elsas; compensation insurance, Harry P. Meikleham; manufacturing and selling, W. K. Moore; traffic, J. H. Walton, constitution and by-laws, J. A. Mandeville; standards of village conditions, D. W. Anderson; information, Landon A. Thomas.

The final business meeting, to elect officers and transact business, will be held on Tuesday evening at 7:00 o'clock, to be followed by the annual banquet at 8:00 o'clock, with President Harris as toastmaster. Several unique entertainment features are planned for this occasion, in celebration of the organization's Silver Anniversary.

Entertainment will be provided in a golf tournament at the Druid Hills Country Club, in charge of "Bobby" Jones national champion, "Chip" Robert and Cherry Emerson.

Ladies attending the convention will be entertained with a luncheon at the Piedmont Driving Club at 1 o'clock on Tuesday, followed by an automobile drive; and will attend the banquet in the evening.

### Shamow Will Maintain Southern Offices.

The report that the Shamow Shuttle Company would move its entire Southern office from Greenville is incorrect. The company is moving its shuttle plant back to Woonsocket, R. I., where they will manufacture fibre head silk spools for the silk trade only. This will be the only type spool they will make at present.

The company will maintain a warehouse in Greenville, storing stocks of shuttles for numerous Southern mills and making shipments out of Greenville. They will also have a shuttle repair shop at Greenville.

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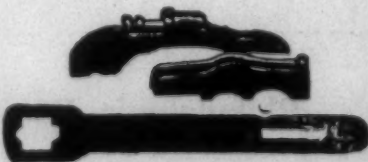
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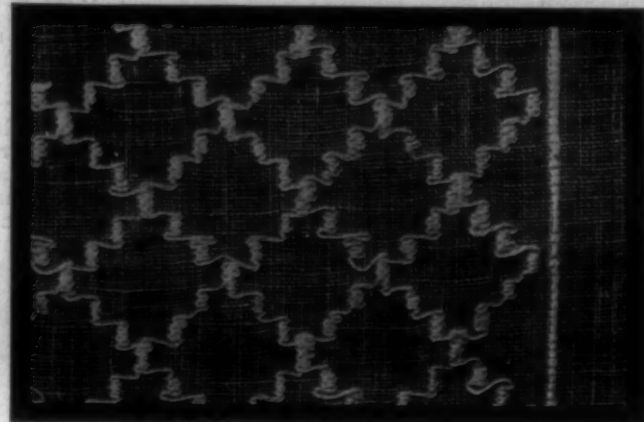


Use Dixon Patent Stirrup Adjusting Saddles, the latest invention in Saddles for Top Rolls of Spinning Machines. Manufacturers of all kinds of Saddles, Stirrups and Levers.

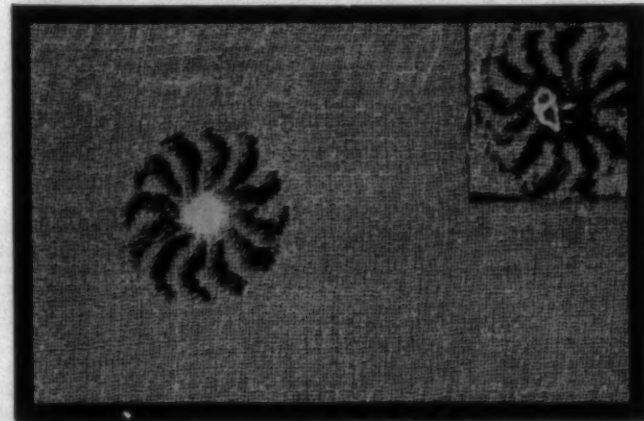
WRITE FOR SAMPLES

## Imported Cotton Cloths

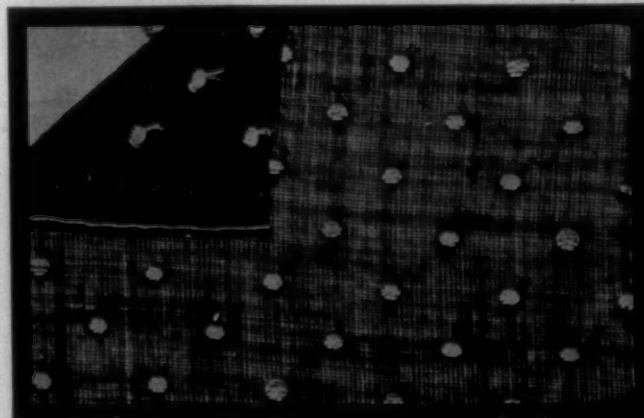
From Survey of United States Tariff Commission.



**Sample No. 83.—Two-Frame Lappet.**  
Plain woven ground with lappet figuring. Finished width, 38 inches.  
59 ends and 43 picks per square inch, finished.  
Warp ground yarn, 58s, 30/5 cord, 30/3 lappet. Filling yarn, 71s bleached.  
Bleached. Printed in olive and blue.



**Sample No. 84.—Plumetis Crepe.**  
Plain woven ground with lappet and swivel figures. Finished width, 39 inches.  
Warp ground yarn, 103/2, hard twisted, bleached. Lappet yarn, 40/2 (estimated), bleached, mercerized. Filling ground yarn, 59s hard twisted, bleached; swivel yarn, 40/ (estimated), mercerized and dyed. Weight, 7.03 linear yards (7.61 square yards) per pound, finished.  
Bleached ground with white lappet and brown swivel threads. Clipped.



**Sample No. 85.—Dotted Swiss.**  
Plain woven ground with swivel dots. Finished width, 31½ inches.  
79 ends and 50 picks per square inch, finished.  
Warp yarn, 64s, dyed. Filling ground yarn, 55s, dyed. Swivel yarn, 40s (estimated), mercerized and dyed. Weight, 11.00 linear yards (9.70 square yards) per pound, finished.  
Blue warp. Blue filling with red swivel dots. Clipped.

## Problems in Bleaching, Dyeing and Finishing

(Continued from Page 7)

In some cases, especially where the goods are intended for printing or dyeing, it is customary to sour on the washing machine instead of in cisterns, and the cloth is piled up in a large heap for the action to take place. A similar process is adopted in "chemicking," and it is suitable unless it is conducted in a manner. For instance, if any portion of the heap of cloth be allowed to become dry the cloth will be damaged. If the goods are intended for whites the damage may not be serious, but if they are intended for dyeing or printing the damaged places will come up in the form of stains because of the difference in the affinity for color of the damaged and undamaged parts.

After "chemicking" all cloth must be well washed before passing to the souring operation, otherwise similar damage to that just mentioned will be brought about. In some cases the cloth may be actually tendered if the washing be insufficient. After the last souring operation the cloth must be thoroughly cleared of every trace of acid. In some cases, where very thick, heavy cloth is being treated it is necessary to neutralize the last trace of acid by means of a solution of ammonia. This is usually carried out on the squeezing machine before the cloth is mangled. Very heavy cloth retains acid to such a degree that it is never safe to trust to washing alone, and if a trace of acid be left in after the final washing it may cause most serious damage. It is not a difficult thing to prevent the damage whilst the cloth is in the bleachworks, but once it has passed into the hands of those who are making it up into garments, etc., it cannot be put right.

Some time ago a complaint was received from India that a large quantity of heavy cotton drill had shown serious tendering after it had been made into suitings. The damage was only found when the garments were pressed and ironed with the tailor's hot iron, but it was of such a character that the goods were rendered useless. Even a trace of acid will bring this about as soon as the natural moisture of the cotton is driven out by means of a hot iron.

In another case the complaint was in regard to ladies' white shoes. A large number had been made, and when they were ironed in the final operation they were so tender that you could put your finger through the cloth without effort. So long as the cloth is on the damp side, and all cloth is more or less damp in Lancashire, the tendering is not apparent in good strong cloth, but the difference between the humidity of India and that of Lancashire is sufficient to account for cloth becoming tendered in India, whilst the reference pattern in Manchester shows no signs of damage. This pattern, however, becomes tendered on ironing if there is a trace of acid present.

"Chemic" is also a very tendering

agent if it be left in the cloth after bleaching, but "chemic" acts more slowly than acid, although the final result is the same. Some years ago some hundreds of bedticks in one of our large hospitals were found to be damaged through the formation of holes due to the breaking of the weft yarn. These bedticks were woven with half-bleached linen weft and a strong cotton warp. The latter was dyed the usual color for such goods, and was found to be perfectly strong. The weft had been bleached in the hank. When the case was submitted to me I examined some of the bedticks, but could find no definite cause for the tendering. Fortunately, the firm who had made the bedticks had some of the original cloth in their possession, and, although some months had elapsed, I was able to prove conclusively that the weft still contained "chemic" in sufficient quantity to cause the damage in the circumstances under which the bed ticks were used. In the hospitals the beds are used day and night, and not at night only as in the case of an ordinary household, and the heat and friction from the patient's bodies had caused the "chemic" to become active. Further than this, it was customary to subject the bed ticks to a steaming operation after the bed had been used by one patient, and this had assisted in bringing about the trouble. It was also because of this steaming process that no direct evidence of "chemic" could be found in the bed ticks when submitted to me.

I have known cases where ladies have purchased squares of fine strong linen for the purpose of making table centers (drawn thread work). The linen was apparently perfectly strong when first bought in spite of the fact that it was proved afterwards to contain "chemic." It was due to the friction and heat from the hands during manipulation of the cloth that the latent defect became active, until finally, when the work was finished and the soiled fabrics was washed for the first time, it came at once into holes.

### General Instructions for Bleaching Cotton Goods intended for Whites and Prints.

In carrying out the bleaching operations the following essential precautions should be observed:—

(1) Care must be taken that the cloth does not get splashed with bleaching liquor or mineral acid sours, especially vitrol, as these liquids have a tendency to produce white spots in the fabric, especially in soured goods, and may cause tendering.

(2) Care must be taken that the cloth is not subjected to any undue strain in its various movements during the different processes, as this will cause such cloths as drills, satin, sateens, etc., to crack on the selvages. This is much more the case with these than with ordinary plain cloth. The tension must, therefore, be watched and regulated so as to avoid any undue strain.

(3) Care must be taken that the washing operations following the chemicking and souring processes are thoroughly carried out.

(Continued on Page 34)

## They Are FUEL SAVERS

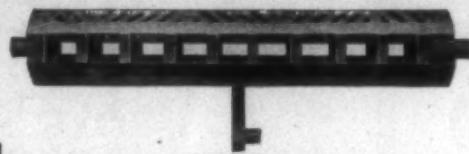
Thomas

True—

Semi—

Steel

Side View



### Wiggling--Shaking--Dumping Grate Bars

Save their cost in fuel in a few weeks use.  
Eliminate the cleaning period.  
Make a poor steaming boiler a free steamer.  
Reduce the fireman's labors.  
Cannot get out of fix and refuse to work.

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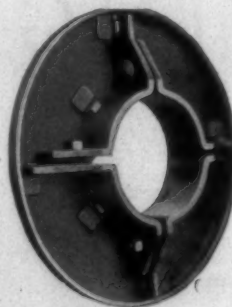
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LOOM BEAM HEADS  
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NARROW FABRIC BEAMS  
BEAMS FOR ELASTIC AND  
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"NEW PROCESS" DROP WIRES  
JACK SPOOLS

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We reclaim burnt and damaged cotton.  
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Ten tons per day or 150,000 yards one unit. Permanent white. The most delicate fabrics undisturbed as from the loom in the bleached, dyed and finished state. Cut on overhead, chemicals and labor, 30 per cent. Also special cold bleach demonstrated for colors. The same process is applicable for small warp and chain bleacheries.

The Taylor Special Process. Patented 1914. Installed in Union Bleachery, Kerr Bleachery, Ware Shoals, Pacific Mills, (North and South), Dutchess Bleachery, Lincoln Bleachery, Arnold Print Works and many others.

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BY BECKY ANN (Mrs. Ethel Thomas)

PRICE \$1.00

An Interesting Story of Cotton Mill Life

For Sale by Clark Publishing Company, Charlotte, N. C.

### The Development Of The Spinning Frame

(Continued from Page 10)

and filling wind. At the beginning of the revolution of the cam there are a series of short strokes near the bottom of the bobbin. As the bobbin fills up the strokes get longer as well as higher, giving a long, rounding taper to the top of the bobbin.

Many forms of traverse are to be found.

The heart cam came into early use, being shown in the British patent to Edmund Cartwright in 1789. It is also shown in the U. S. patent to Bradshaw granted in 1832. It is still used on modern builder motions. The heart cam is a simple means of obtaining a uniform rising and falling motion.

The later developments along this line have been such as would give quick adjustments to the length of traverse, to the lengths of strokes, and to lay of the yarn in winding, and to make one combination builder which can be used for either warp or filling wind.

There is also a growing tendency toward making the traverse longer. As in the case of larger-diameter rings, this increase the amount of yarn on a bobbin, and reduces the amount of labor required for doffing and in the succeeding operations of spooling and winding. This tendency is limited, of course, by the strength of the yarn and the quality required.

#### Separators.

As the number of spindles on each side of the spinning frame was increased, there was a tendency to bring them closer together. This crowding was prevented, or at least limited, by the interference of the balloons of adjoining spindles.

Here we again come to the work of John Thorp, of Providence, R. I., and of Charles Danforth, of Paterson, N. J. In 1829, a patent was granted to Thorp showing a separator to restrain the balloon in cap spinning. His separator (figure 26) is cylindrical in shape and is self-threading. In 1841, Danforth used a spiral wire separator. This was also for cap spinning (figure 27).

(Continued Next Week)

### Preparing Viscose Yarns for Weaving

(Continued from Page 12)

and worsted warps, so is it also necessary to the weaving of "dumb" (i.e., untwisted) viscose warps, but not where the warp is made from viscose organize or where sufficient twist is given to the yarn to enable it to withstand the friction of weaving. Roughly speaking, there are two ways of sizing viscose—warp sizing and hank sizing, the former being the one most generally used.

As the process of sizing viscose warps is still in an evolutionary stage, it would hardly be useful to describe any particular method of doing it. There are various methods, each one having some points in its favor, thus making it difficult to say which is the most satisfactory.

Warp sizing is comparable with cotton slasher sizing. In some sizing machines the viscose warp threads pass over a roller revolving in a trough of sizing liquor, which deposits a coating of size on the threads as they come in contact with it. In other machines the viscose passes through the sizing solution.

The drying of the viscose warps after sizing is also accomplished in a variety of ways—e.g., by passing over a hot plate, over hot revolving cylinders, or through a drying chamber with or without forced currents of hot air.

The sizing machine should be run at a speed which will allow the sizing solution time to adhere to the threads and also to give the viscose warps time to dry before being wound to the beam. Owing perhaps to the oily or soapy substances used in the dyeing process, some dyed viscose warps, such as fast black and certain dark colors, particularly blues and browns, have a tendency to resist the size. In such cases the viscose should be allowed more time in which to absorb the size. This can be accomplished by running the machine slower, thus giving a longer time for saturation to the viscose when in contact with the sizing liquor. Warps should be sized with as little tension as is practicable, viscose when in a wet state being weak and extremely liable to stretch. The stretching which takes place during sizing is usually about 5 per cent. If this amount of stretch is exceeded there is danger of the threads becoming strained and damaged. In piece-dyed goods the stretch given in sizing recovers itself when the cloth is "wetted" at a later stage in the dyeing process.

In hank sizing the viscose is simply opened out and immersed into the sizing liquor, the skeins being then hung up loose until dry. Hank-sized yarn has one advantage over beam-sized yarn—i.e., no stretch is put upon the viscose during the process. Its great disadvantage is, being in hank, the sized viscose has to pass through at least three processes—winding, warping, and beaming—before it reaches the weaving, which is the process where the size on the viscose thread is most needed. In practice it is found that when hank-sized viscose reaches the weaving some of the size has either been distributed or lost through the friction and the handling it gets during the processes already mentioned. Consequently hand-sized viscose is not so effective as beam-sized yarn where entire warps or where warps containing a large number of viscose threads are required. Where coarser denier threads are used or where it is advisable to use viscose free from stretch, or where the viscose warp threads are few in number, hank-sized yarn can often be employed with advantage.

For spooling viscose weft stout wooden spools with heads and tips protected with smooth brass or steel have been found useful and can be recommended where the manufacturer does his own spooling and there is no question of transport in-

involved. The spools should be well varnished; this not only lengthens their life, but the smooth surface prevents the extremely fine filaments of which the viscose thread is composed from being frayed or broken. Where weft is to be carried about the country it is found that well-made compressed paper spools, if carefully inspected before used, give very satisfactory results. Some spooling machines are built to spool viscose direct from the hank, thus eliminating the process of winding from the hank to the spooling bobbin. Spooling direct from the hank can be successfully accomplished where doubled, trebled, or heavier denier yarn is used but for fine sizes of viscose it is not so satisfactory as spooling from the bobbin. Much damage can be done to the viscose weft during the spooling process, and the "bright picks" in the cloth have frequently been proved to be caused by the strain put upon the thread during this process. Friction and strain in spooling are as far as possible avoided so that in its passage from the yarn bobbin to the spool, the viscose thread does not come into contact with any stationary rod or guider with fixed point of contact. The three points of contact, are fibre-wheels that freely revolve by the pressure of the viscose thread as it comes into contact with them. The wheel is carried on the end of a fishing-rod tension wire, which is free to move in a vertical line in accordance with the amount of pull or tension exerted by the thread as it passes over the wheel. In this way slackness, strain, and friction on the viscose thread are reduced to a minimum, and "bright picks," which are a bugbear to the users of rayon weft, are largely avoided. Knots tied during the spooling process should be placed at the back or thick end of the traverse so as to prevent the weft thread from being caught by the projection as it is drawn off the spool during weaving.

### New Loom May Revolutionize Weaving

(Continued from Page 13)

mechanical methods that were, compared to the advances in other fields and endeavors, old-fashioned.

"My loom is clearer in its operation, perhaps to an electrician than to a textile expert, but it is so simple that any mechanic able to run a jacquard or Dobby loom may easily operate it. In fact, in experiments in Belfast in the linen damask trade, we had no difficulty in achieving results. This machine is the result of many years study and experiment on my part, and is a development slowly achieved through partial successes in each of the details, until it has been finally possible to eliminate all of the former jacquard mechanism."

Dr. Craver is the inventor as well of the attachment known as the warp-stop device, many thousands of which have already been sold in Germany and France. The control of this patent is held very closely by a strong group of Manchester

capitalists in the engineering and textile trades and it is their hope and sincere belief that they will have the loom on the market during the coming summer.

It is easy to become overenthusiastic about such a machine and especially so when discussing it with such a sincere man as Dr. Craver, and I fully realize the dangers and the difficulties entailed in the introduction of a new invention of this character. At the same time I believe that the Carver loom will make a basic change in the mechanical science of weaving, and it will introduce a new era into damask mills and will eventually, after penetrating this field, be attached to other more complex phases of the industry. Any mill treasurer who is contemplating the installation of damask looms of the character I have mentioned would be acting on the side of reasonable safety by investigating this machine before reaching a final decision.

#### Cotton Goods Market in Netherlands Jute Bag Market in Chile.

Imports into Chile of gunny or jute bags for shipping nitrate of soda amounted in 1923 to 3,000,000 kilos valued at 1,500,000 pesos (kilos equals 2.2046 pounds and pesos equals \$0.365). In 1924, these imports reached a total of 12,500,000 worth 5,500,000 pesos. Most of these bags are shipped direct from India and are entered through the port of Iquique, according to a report from Consul Campbell. The bags in general use are known as Standard Heavy C. Rice Bag, dimensions 23 inches by 33 inches, mesh 8x8 or 8x3, average weight at time of shipment 24 ounces. Quotations are practically all c.i.f. alongside discharging vessel at Iquique, prices quoted in English pence per bag, the present price being about 9 pence per bag. It is said to cost 2 or 3 pence additional to land and deliver bags to the nitrate plants. The import duty is 0.03 Chilean gold peso per kilos, gross weight. Payment is usually by 90 day draft on London payable upon receipt of order of delivery or during the first week of the month after the arrival of the vessel for discharge. A list of Iquique dealers in bags will be made available to American firms upon application to the Textile Division, Bureau of Foreign and Domestic Commerce.

#### East Indies.

Imports of cotton goods in the Netherlands East Indies increased considerably in 1924 as compared with 1923, Great Britain and Japan profited by this increase while the Netherlands was the principal loser. Imports of cotton goods into Java and Madura during 1924 were as follows: Unbleached, 7,361,000 kilos; bleached, 12,973,000 kilos; colored and printed other than sarongs, slendangs, etc., 13,889,000 kilos. Japan supplied 75 per cent of the unbleached or approximately 30 per cent more than in 1923. Imports from China also showed an increase. Bleached goods came principally from Great Britain and the Netherlands.

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PARTICULAR TEXTILE MILL

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Improves Weaving"*

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Today, Klauder-Weldon machines are universally used—a acknowledged leaders in efficiency and profit producing durability.

On request, a representative will gladly discuss your present or future dyeing requirements and problems with you.

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**KLAUDER-WELDON DYEING MACHINE  
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Mississippi, Louisiana and Ar-  
kansas Short and Benders.

Yazoo, Miss., Delta Extra Staples.  
Clarksdale, Miss.

### Problems in Bleaching, Dyeing and Finishing

(Continued from Page 31)

(4) Some bleachers omit the last souring operation for fear of leaving a trace of acid in the cloth. This is a very bad practice because if a small amount of chemic be left in, it will produce more or less oxycellulose on drying. This may be sufficient to cause stains on dyeing, and it may even be sufficient to produce tendering, especially if the are subjected to an after treatment, such as mordanting with an alkaline solution of beta-naphtholate of soda containing free caustic soda. Caustic soda will dissolve the oxycellulose and so weaken the fabric. Cloth free from dangerous quantities of oxycellulose is not tendered by caustic soda.

(5) Strengths of chemic and sours are generally given in degrees Twaddell. This method of measuring the strength is correct if the solutions are clean and fresh. In the case of chemic especially, however, it does not follow that the strength is that which is indicated by the Twaddell, because the active agent may have been dispersed by decomposition. An experienced bleacher can tell by the taste of his solutions of sours and chemic whether they are of the right strength for the particular work he is carrying out at the moment.

(6) A bleacher should always test the cloth for chemic and acid at each stage of the processes, after each particular washing has been completed. Starch iodide paper turns blue in the presence of chemic, and methyl-orange paper should be used in testing for acid. If this latter test were always carried out there would be no need to fear tendering from the effect of acid being left in after the final washing. Blue litmus paper is too sensitive for this test because there is generally sufficient carbonic acid in the cloth and in the air to turn wet litmus paper red.

(7) If, for any reason, it is not suitable to sour after washing off chemic, then an antichlor, such as hyposulphite of soda, should be used to get rid of the last trace of chemic.

(8) Cloth should not be left piled up too long after souring or chemicking. Care should be exercised that no portion be allowed to get dry at this stage, otherwise damage is sure to take place. Much damage is caused in goods intended for dyeing by leaving them piled up after washing off chemic, over the week-end. If all the chemic has not been removed in the washing process, this will affect the cloth where it has become dry. The author has seen cloth which has stood from Friday to Monday, and which was supposed to be "washed off" chemic, in which the smell of chemic could be recognized when passing the pile of cloth. Considerable portions of the cloth had become dry at the edges, and these parts came up as resist stains when the goods were dyed with direct colors.

(9) In the case of lawns, handkerchiefs, and other very light goods, it is better to hand scutch than to

employ a scutching machine. In the former operation the headings and borders are kept much straighter, and there is not the same risk of damage as when the machine is used.

### Textile Exports in 1924

Washington, April 21.—Domestic exports of textiles, including crude materials, semi-manufactures and finished manufactures, were valued at \$1,143,700,000 in 1924, constituting 25.46 per cent of total exports, compared with \$1,002,000,000 in 1923, according to an analysis of foreign trade of the United States, issued today by the Department of Commerce. Raw cotton was by far the largest factor in textile exports.

Imports of textiles last year were valued at \$877,500,000, constituting 24.36 per cent of the total, compared to \$1,009,100,000, in 1923.

#### Exports Exceed Imports.

Thus the value of textile exports in 1924 exceeded the value of textile imports, while the reverse was the case in 1923.

But of textile finished manufactures, exports last year were valued at \$172,300,000, or 3.8 per cent of total exports, compared to \$176,300,000 in 1923. Imports of textile finished manufactures in 1924 were valued at \$305,000,000, or 8.5 per cent of the total, compared to \$316,700,000 in 1923.

Imports of semi-manufactures of textiles also were larger than exports of this class last year, leaving a favorable balance of trade in textiles only to exports of crude materials.

#### Value of Crude Materials.

In both exports and imports, crude materials in the textile group were valued at much more than manufactures and semi-manufactures combined.

Crude textile materials constituted 71.8 per cent of exports of all crude materials last year. Textile semi-manufactures constituted 3.16 per cent of all exports of this class, and textile finished manufactures constituted 10 per cent of exports in this class.

Of imports of crude materials, textiles supplied 42.26 per cent; of the totals of semi-manufactured imports textiles constituted 7.8 per cent; and of finished manufactures imports, textiles constituted 40.76 per cent of the total of the group.

#### Chicago Fuse in New Office.

The Chicago Fuse Manufacturing Company announces the removal of their New York Office and warehouse, on April 15th, to 71 Murray St., New York City.

In these more spacious quarters they are better equipped than ever to give customers the best attention and service on Union Renewable Fuses, Gem- Non-Indicating Fuses, Union Indicating Fuses, Union Stamped and Open Link Fuses, Gem Mica Top Fuses, Gem Radio Fuses, Union Cutout Boxes, Gem Sectional Switch Boxes, Union Outlet Boxes and Union Set-up Boxes.

## Clark's Cotton Records

Statistics for Week Ending April 25, 1925.

	1925.	1924.	1923.
Visible supply American	3,122,000	1,883,000	1,743,000
Into sight for week	119,000	105,000	84,000
Mill takings during week	231,000	198,000	178,000
Mill takings since Aug. 1st	11,662,000	9,215,000	10,321,000
Exports during week	79,000	73,000	27,000
Exports since Aug. 1st	7,229,000	4,799,000	4,067,000

### Government Reports.

	1925.	1924.	1923.
Acreage this season	40,403,000	38,709,000	34,016,000
Indicated crop July 25	12,144,000	11,412,000	11,065,000
Indicated crop middle of July	11,934,000		
Indicated crop end of July	12,351,000	11,516,000	11,449,000
Indicated crop middle of Aug.	12,956,000		
Indicated crop end of Aug.	12,787,000	10,788,000	10,575,000
Indicated crop middle of Sept.	12,596,000		
Indicated crop end of Sept.	12,499,000	11,015,000	10,135,000
Indicated crop middle of Oct.	12,675,000		
Indicated crop end of Oct.	12,816,000		
Indicated crop middle of Nov.	12,992,000		
Indicated crop end of Nov.	13,153,000		
Ginned to Oct. 1st	4,527,671		
Ginned to Oct. 18th	7,600,826	6,415,145	6,078,321
Ginned to Nov. 14th	11,163,400		
Ginned to Dec. 1st	12,225,000		
Ginned to Jan. 16, 1925	13,308,037		
Ginned to March 20 (final report)	13,618,751		
Carryover beginning cotton year	2,319,000	2,573,000	4,879,000

### Cotton Exports.

Following is a comparison of the exports by months in running bales, including linters:

	1924-25.	1923-24.	1922-23.
August	277,641	244,415	272,808
September	737,010	689,435	378,390
October	947,556	781,722	798,664
November	1,306,000	770,002	858,337
December	1,076,000	845,581	607,853
January, 1925	1,076,000	546,253	473,436
February	818,838	482,146	359,657
March	734,697	332,168	318,210
April		320,774	259,984
May		326,357	160,368
June		230,979	214,851
July		241,633	171,469
		5,772,000	4,864,027

### American Consumption of All Kinds of Cotton, Excluding Linters.

(In running bales, 000s omitted.)

	1924-25		1923-24		1922-24	
	Per Month	Per Season	Per Month	Per Season	Per Month	Per Season
August	357	357	492	492	526	526
September	435	793	484	975	494	1,020
October	530	1,322	542	1,517	534	1,554
November	492	1,814	532	2,049	579	2,133
December	533	2,347	462	2,510	529	2,663
January 3	589	2,924	577	3,088	610	3,273
February, 1925	550	3,324	508	3,595	567	3,840
March	582	3,874	484	4,079	624	4,464
April			480	4,559	577	5,041
May			414	4,991	621	5,661
June			350	5,341	542	6,203
July			347	5,688	463	6,666

## Book Salesman Wanted

We want to get in touch with a salesman, woman preferred, who can sell "The Better Way," "Hearts of Gold," "Will Allen Sinner" and other books of Becky Ann (Mrs. Ethel Thomas) in the cotton mill villages.

The stories of Becky Ann deal with cotton mill life and are very popular in the mill villages. They sell for \$1.00 each.

CLARK PUBLISHING COMPANY  
Charlotte, N. C.

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Selling Agents for Southern Mills  
Sheetings, Print Cloth, Drills, Twills, Ducks

**W. H. LANGLEY & CO.**  
COMMISSION MERCHANTS  
57 Worth St. New York  
Sole Selling Agents For  
Langley Mills, Seminole Mills, Aiken Mills, Anderson Cotton Mills,  
Strickland Cotton Mills, Moultrie Cotton Mills, Poulan Cotton Mills,  
Royal Cotton Mills

**WOODWARD, BALDWIN & CO.**  
Established 1828  
43 and 45 Worth Street, New York  
Selling Agents for  
Southern Cotton Mills  
Baltimore Philadelphia Boston St. Joseph  
St. Louis San Francisco Chicago Shanghai (China)  
St. Paul Cincinnati Minneapolis

**Wellington, Sears & Company**  
93 Franklin St., Boston 66 Worth St., New York  
Philadelphia Chicago St. Louis Dallas  
Atlanta New Orleans San Francisco

**Amory, Browne & Co.**  
Specializing in Selling Cotton Mill Products  
BOSTON, 48 Franklin St. 62 Worth St., NEW YORK  
Our Export Department Serves 69 Foreign Countries

**CURRAN & BARRY**  
320 Broadway  
New York, N. Y.

**REEVES BROTHERS, Inc.**  
55 Leonard Street New York  
Print Cloths, Twills, Pajama Checks,  
Sheetings, Combed Peeler Yarns

## Cotton Goods

New York.—Trading in the cotton goods market was quiet during the week except for the activity in wide print cloths. These goods sold well throughout the week, it being estimated that orders covered 175,000 pieces, including deliveries running into September. Prices on wide prints for spot delivery command a premium of a half cent over future prices.

The market for sheetings and drills was not so active. There was some buying for the bagging trade, but very little for jobbing and export business. Sateens, twills and other convertibles remained quiet. Unfinished goods in heavy weights for the manufacturing trades were steady, but sales generally were of small lots for prompt shipment.

Trade in gingham, both in wholesale and retail channels showed some improvement during the week. Fine and fancy goods were not as active as for the previous week, although the outlook for a better business within the next few weeks is regarded as more hopeful. Rayon mixtures were in the best demand. The shirting trade is prepared for a large variety of novelty goods and a wide variety of patterns are being offered. Staple fabrics were dull, sales being confined to buying of broadcloths, lawns and voiles.

A few contracts were placed for silk and cotton fancies. The mills' price ideas were lower than had been the case several weeks ago. Crepes showed no price changes, with 80x76s 24c up for good make and two end 29c to 30 for futures, with deliveries to begin in four weeks.

The market for tire fabrics went through a quiet period. There was some inquiry but tire producers ideas of price did not harmonize with sellers'. There was some talk of declining cotton values as an influence favoring a lower market. Fabric factors pointed out that every decline in middling cotton meant an added premium for long staple cotton.

Sales were few in the cotton duck section. With the size of orders small no lower prices were accorded buyers. The mills are disposed to negotiate with buyers to the latter's advantage if they can see their way clear in preparing for their later requirements.

While cotton goods are quiet the general market conditions observed are very little different from those reported in other lines of trade. Forward orders are being laid down very cautiously. In heavy cottons the buying is from hand-to-mouth

just as in dress fabrics and gray cloths. Prices are steady, largely because they are so very close to cost. Mills cannot afford to reduce prices much and there is not a heavy unworkable surplus in the hands of merchants at this time. Most of the current interest centers in fancy goods of many sorts, notably any new printed designs offered for early shipment.

Demand in Fall River print cloth market during the week has continued light, with the estimated sales for the week reported at 35,000 pieces. For the first time in many weeks prices showed weakness during this period, especially sateen, which showed a decline of a quarter cent, which also applies to twills. Mills in general have resisted efforts to place orders for wide and narrow plain goods on a concession basis, but in some instances small sized orders were put through at slight concessions. Deliveries are from the present up to the first of July.

Wide and narrow plain goods have been very quiet on the basis of 54 cents per pound. Unusual quietness has prevailed in the 36-inch numbers, which have usually furnished the bulk of the sales for the past months.

Cotton goods prices were as follows:

Print cloths, 28-in., 64x64s	7 1/4
Print cloths, 28-in., 64x60s	7
Print cloths, 27-in., 64x64s	6 1/2
Gray g'ds, 38 1/2-in., 64x64s	10 1/2
Gray goods, 39-in., 68x72s	11 1/2
Gray goods, 39-in., 80x80s	13
Brown sheetings, 3-yard	14 1/4
Brown sheetings, 4-yard	11 1/2
Brown sheetings, standard	15 1/4
Ticking, 8-ounce	26
Denims	20
Staple gingham, 27-in.	11 1/4
Kid finished cambrics	9 1/2 at 10 1/2
Dress gingham	18 1/2 at 10 1/2
Standard prints	9 1/2

### Uruguay Wool Market Lacks Orders

The decreased activity in the Uruguay wool market which began in the latter part of January became accentuated in February and continued into March, according to Commercial Attache Clark, Montevideo. Stocks at Montevideo are very large and the principal barracas are piled up with wool but report no business offering. Prices are at a high level and indications now are that the marketing of the clip will drag along into July or August with the possibility of a carryover of a portion into next season.

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# The Yarn Market

Philadelphia, Pa.—The yarn market remained practically unchanged during the week. Buyers were hesitant and gave little attention to future requirements in spite of the fact that some yarn prices were very attractive. Mills did not lower prices in spite of the dull business and their quotations continued well over dealers price. The price of 40-2 skeins and warps held firmer and higher than other quotations, but only small lots were sold.

Combed yarns and mercerized yarns were firm. There was more talk of curtailment in both the South and the East, many mill men pointing out the wisdom of drastic curtailment and the only remedy for the present market conditions.

There was some further reduction of prices from the previous week, but the list as whole remained unchanged. Quotations are regarded as purely nominal and show a great deal of irregularity.

A period of fairly active demand is believed to be just ahead in Southern combed peller yarns. Just at present, there is little indication of improvement, but dealers in possession of the facts insist that the situation among the spinning mills is identical with that among the consumers and that not only will the spinners need fresh orders in May, but that consumers must replenish their stocks at that time. This combination of influences, it is said, can scarcely fail to produce considerable combed yarn business within the next few weeks.

Southern Two-Ply Chain Warps.			
2-ply 8s.....	40 a.	2-ply 26s.....	46½a.
2-ply 10s.....	41 a.	2-ply 30s.....	48 a.
2-ply 16s.....	43 a.	2-ply 40s.....	60 a62
2-ply 20s.....	43½a.	2-ply 50s.....	68 a.
2-ply 24s.....	46 a.		

Southern Two-Ply Skeins.			
8s.....	39 a.	40s.....	59 a.
10s to 12s.....	40 a.	40s ex.....	62 a63
14s.....	41 a.	50s.....	68 a.
16s.....	42 a.	60s.....	74 a76
20s.....	43 a.	Tinged Carpet.....	
24s.....	46 a.	3 and 4-ply 36.....	a37
26s.....	47 a.	White Carpet.....	
30s.....	47 a.	3 and 4-ply 37½.....	
36s.....	57 a.		

Part Waste Insulated Yarn.			
6s, 1-ply.....	36 a.	12s, 2-ply.....	38 a.
8s, 2, 3 and 4-ply.....	36½a.	20s, 2-ply.....	42 a.
10s 1-ply and 3-ply.....	37 a.	26s, 2-ply.....	47 a.
		30s, 2-ply.....	47 a.

Duck Yarns.			
3, 4 and 5-ply.....	3, 4 and 5-ply.....		
8s.....	39 a.	16s.....	43 a.
10s.....	40 a.	20s.....	44 a.
12s.....	41 a.		

Southern Single Chain Warps.			
10s.....	39 a.	24s.....	45 a.
12s.....	40 a.	26s.....	46 a.
14s.....	41 a.	30s.....	50 a.
16s.....	42 a.	40s.....	60 a.
20s.....	43 a.		

Southern Single Skeins.			
6s to 8s.....	38 a.	20s.....	42½a.
10s.....	39 a.	24s.....	45 a.
12s.....	40 a.	26s.....	46 a.
14s.....	41 a.	30s.....	48 a.
16s.....	41½a.		

Southern Frame Cones.			
8s.....	38 a.	22s.....	41 a.
10s.....	38½a.	24s.....	42½a43
12s.....	39 a.	26s.....	44 a.

14s.....	39½a.	28s.....	45 a.
16s.....	40 a.	30s.....	46 a47
18s.....	40½a.	30s tying in.....	45 a.
20s.....	41 a.	40s.....	56½a57½

Southern Combed Peeler Skeins, Etc.			
2-ply 16s.....	56 a60	2-ply 50s.....	85 a.
2-ply 20s.....	56 a62	2-ply 60s.....	90 a.
2-ply 30s.....	65 a67	2-ply 70s.....	95 a1 00
2-ply 36s.....	68 a75	2-ply 80s.....	1 05a1 10
2-ply 40s.....	75 a80		

Southern Combed Peeler Cones.			
10s.....	50 a.	30s.....	60 a.
12s.....	51 a.	32s.....	62 a.
14s.....	52 a.	34s.....	64 a.
16s.....	52½a.	36s.....	65 a.
18s.....	53 a.	38s.....	68 a.
20s.....	53½a.	40s.....	70 a.
22s.....	54 a.	50s.....	75 a.
24s.....	54½a.	60s.....	85 a.
26s.....	55 a.	70s.....	95 a.
28s.....	57 a.	80s.....	1 05a.

Eastern Carded Peeler Thread-Twist Skeins.			
20s, 2-ply.....	52 a.	36s, 2-ply.....	64 a.
22s, 2-ply.....	53 a.	40s, 2-ply.....	66 a.
24s, 2-ply.....	55 a.	45s, 2-ply.....	69 a.
30s, 2-ply.....	58 a.	50s, 2-up.....	74 a.

Eastern Carded Cones.			
10s.....	47 a.	22s.....	53 a.
12s.....	48 a.	26s.....	55 a.
14s.....	49 a.	28s.....	57 a.
20s.....	52 a.	30s.....	59 a.

## Yarn Spinners' Bulletin.

The weekly bulletin of the Southern Yarn Spinners' Association says:

"Conditions in the yarn market remain practically unchanged. There is but little business other than small hand-to-mouth purchases. The reported level of prices is slightly lower than those of a week ago. Spinners' asking prices are at an advance. Based on today's New York spot market the reported market prices are more than 2 cents less than replacement value. In consequence spinners are not seeking business at prevailing prices.

"With the lack of demand, any accumulation of stocks would further depress an already depressed market. The spinners' policy of curtailment is the only solution of present conditions."

## American Mercerized Yarn for Nottingham Market.

The Nottingham trade is evincing an interest in American mercerized yarn for use in the local knitting industry and to a certain extent in the manufacture of dress fabrics, Consul Lee, Nottingham, reports to the Department of Commerce. A large portion of the yarn now used is made of Egyptian brown cotton which has to be bleached before dyeing many of the shades now so much in demand. The American yarn, on the other hand, has a white natural fiber ready for dyeing without bleaching. This feature of the American yarn gives it a particular advantage if it is to be mixed with rayon and knitted or woven before dyeing, for the reason that rayon deteriorates greatly in the process of bleaching.

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than either wool or cotton, therefore, its use is a distinct economy.

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White Hall Yarn Mills, White Hall, Ga.  
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Spindle Plumber. Must be first-class or don't apply. Pay 50 cents per hour. Jno. W. Ridenhour, P. O. Box 3, Albemarle, N. C.

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2500 second hand twister spools, 4x6 inches for 7-16 inch spindles. Give price and send sample to Box 697, Charlotte, N. C.

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One 70" Buffalo Exhauster, 30" outlet. One lot of machine shop and wood working equipment. One lot hangers, ball bearings, couplings, shafting, etc. All practically new. Bargain prices for quick sale. Shambow Shuttle Company, Greenville, S. C.

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One 80 H. P. Fire Tube Boiler, excellent condition. Open for inspection. Can be bought for \$300. Apply High Shoals Mill, High Shoals, N. C.

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One pair 60 Spindle 11x5½ Woonsocket Slubbers, with chain driven carriage, late model and in perfect condition. High Shoals Mill, High Shoals, N. C.

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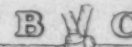
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## Hosiery Exports and Imports

**EXPORTS** of hosiery from the United States during 1924 fell off in comparison with shipments abroad during the previous year, according to the Textile Division of the Department of Commerce. Sales abroad during 1924 included 6,400,000 dozen pair, valued at \$19,700,000, as against 6,700,000 dozen pair in 1923, with valuations of \$19,830,000. Thus, a drop of 300,000 pair of socks, and a falling off of \$60,000 in values occurred during 1924. Shipments of cotton and rayon hosiery were considerably smaller, while exports of silk socks were approximately 70 per cent greater in 1924 than in the previous year.

Of the 1924 total quantity, the United Kingdom took 21 per cent; Cuba, 15 per cent; and Argentina, 11 per cent. Cotton hosiery was the most important class in the 1924 exports and amounted to 4,825,000 dozen pairs valued at \$9,096,000; silk ranked second in point of value with 755,000 dozen pairs worth \$6,947,000; rayon accounted for 845,000 dozen pairs with a value of \$3,732,000. Comparable figures for 1923 show that prices for the 1924 exports were higher for cotton, approximately the same for rayon, and lower for silk hosiery.

Cuba and Argentina continued to be the largest markets for cotton hosiery, although each of these countries took less in 1924 than in 1923. The United Kingdom occupied third place as a buyer of this class of goods and took a larger quantity than during the previous year. Exports to Continental Europe were smaller in 1924 than for the year before, while those to Central America and Mexico were considerably larger. With the exception of Argentina, most of the South American countries took greater quantities than during 1923.

### Rayon Hosiery.

Exports of rayon hosiery to the United Kingdom were larger than in 1923 and were approximately 40 per cent of the total exports during 1924. Argentina, which was the second largest market in 1923, took only about 15 per cent as many rayon hose, while Mexico's imports almost doubled and that country occupied second place in 1924. Shipments to Cuba were also smaller, but many of the heretofore unimportant markets showed substantial increases in their takings.

### Silk Hosiery.

Exports of silk hosiery were over 70 per cent greater in quantity during 1924 than in the previous year, and with the exception of Argentina and France this increase was evident in all markets. The United Kingdom took over 50 per cent of the total hosiery exports and more than doubled the quantity imported from the United States during 1923.

### Hosiery Imports.

Imports of hosiery for 1924 were also less than those for 1923, and for 1924 were as follows: Cotton, 530,939 dozen pairs, valued at \$1,409,318; wool, 166,506 dozen pairs, worth \$422,201. Comparable figures for 1923 are: Cotton, 611,718, \$1,326,591; wool, 578,501, \$197,302. Separate fig-

ures for imports of silk and rayon hosiery are not available.

No production figures are available for 1924, but in 1923 figures for domestic production showed a considerable increase in quantity over all previous years and in point of value were over four times that reported for 1914, totalling, in 1923, 97,433,000 dozen pairs, valued at \$378,733,000. The production of all classes of hosiery, except all-wool, increased in 1923 as compared with 1921, but the largest gains were made in cotton hosiery and in hosiery of natural silk or rayon mixed with other fibers.

Hosiery manufacturers, on the whole, found 1924 far from satisfactory. This product is particularly responsive to fashion tendencies, and the trend toward novelties in men's socks and the demand for a variety of colors and styles in women's hosiery forced manufacturers in many cases to make quick adaptations of their products to meet the market requirements. The consumer's demand for attractive hosiery at reasonable prices has led to a further expansion in the use of rayon, both alone and in combination with other fibers, and such goods are rapidly displacing mercerized cotton hosiery and restricting the output of the cheaper grades of ordinary cotton hosiery.

### Italian Cotton Industry Expanding.

Reports as to the condition of the Italian cotton spinning and weaving industry continue optimistic, according to the office of the American Commercial Attache at Rome. Production is on the upward swing both as regards quantity and technical perfection, and Italian cotton textiles are beginning to be known on many world markets to which they were hitherto a stranger. Imports of raw cotton amounted to 201,435 tons in 1924 as compared with 185,341 tons in 1923 and 177,696 tons in 1922. Takings of raw cotton during January, 1925, were 25,905 tons as against 18,030 tons during January 1924, and only 8,060 tons during the same month 1923. It is stated that up to February 6 of the current year, Italy had already taken 73,252 more bales of American cotton than during the corresponding period last season. Exports of cotton yarn during 1924 amounted to 17,800 tons as against 13,242 tons in 1923, while 52,288 tons of cotton piece goods were sold abroad as against 45,418 tons in the preceding year.

### Cotton Cloth Imports into Guatemala.

Cotton cloth imports into Guatemala increased from \$2,663,000 in 1923 to \$4,212,000 in 1924, a gain of 58 per cent, Consul General Holland, Guatemala City, advises the Department of Commerce. In 1924, the United States supplied goods to the value of \$2,576,000, a gain of 42 per cent over the preceding year; England supplied \$1,188,000, a gain of 30 per cent; Germany \$238,000, a gain of 51 per cent; and France \$50,000, a gain of 235 per cent. Japan and Italy furnished the remaining \$367,000, the major portion coming from Japan.

## EMPLOYMENT BUREAU

The fee for joining our employment bureau for three months is \$2.00, which will also cover the cost of carrying a small advertisement for one month.

If the applicant is a subscriber to the Southern Textile Bulletin and his subscription is paid up to the date of his joining the employment bureau the above fee is only \$1.00.

During the three months' membership we send the applicant notices of all vacancies in the position which he desires and carry small advertisement for one month.

We do not guarantee to place every man who joins our employment bureau, but we do give them the best service of any employment bureau connected with the Southern Textile Industry.

WANT position as overseer spinning, 6 years as overseer spinning and winding hosiery and underwear yarns. Have pleased most exacting customers on hosiery yarns. Good manager of help. Would consider large second hand job. Good references. No. 4425.

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WANT position as carder and spinner or as spinner. Have had 20 years experience as carder and spinner. Strictly sober and reliable. Can get results. Age 40, married. No. 4427.

WANT position as overseer spinning. Fifteen years on last job. Experienced on both white and colored work. Good references. No. 4428.

WANT position as night superintendent or overseer spinning. Long experience and get results. Good references. No. 4429.

WANT position as overseer carding, 25 years practical experience. Can get quality and quantity production. Good references. No. 4430.

WANT position as superintendent. Long experience as superintendent and overseer and can show excellent results. No. 4431.

WANT position as overseer weaving, would take place as second hand in large room. Experienced on wide and narrow loom, towels, pillow cases tubing, also understand plain weaving. Practical slasher and size man, sober and reliable. Good references. No. 4432.

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WANT position as overseer carding or spinner. Thoroughly reliable and competent man of long experience. Good manager of help. First class references. No. 4434.

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WANT position as overseer carding. Now employed in good mill as carder, but wish to change. Can handle all grades of cotton, low grades and waste. Know card room machinery and can handle help. Married, age 36, good habits, excellent references. No. 4436.

WANT position as overseer carding or spinning, or both. Thoroughly reliable and experienced man, good references as to character and ability. No. 4437.

WANT position as superintendent of carded yarn mill. Age 35, married, have had 20 years in mill, 8 years as superintendent. Good references. No. 4438.

WANT position as overseer spinning in small mill or second hand in large mill. Good references as to character and ability. No. 4439.

WANT position as overseer cloth room. Long experience on wide variety of goods, have given satisfaction on number of good jobs. Best of references. No. 4440.

WANT position as superintendent or manager, superintendent or would take large weave room or place as textile supply salesman. Excellent references to sow past record. No. 4441.

WANT position as superintendent or overseer weaving. Practical man of long experience on wide variety of goods, fancy and plain, white and colored work. Best of references. No. 4442.

WANT position as carder or spinner. Practical and reliable man of long experience and training. Good references. 4443.

WANT position as overseer carding, spinning or both. Married, sober, no bad habits. Best of references. No. 4441.

WANT position as superintendent to assistant superintendent of yarn mill. Can give good references as to character and ability. No. 4445.

MASTER mechanic with excellent reputation wants to change position on account of ill health in family. Best of references from well known mill men. Will consider only place paying good salary. No. 4446.

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WANT position as overseer weaving. Experienced on wide range of fabrics and can furnish excellent references from present employers. No. 4448.

WANT position as superintendent. Now employed and have fine record of past service. Good references. No. 4449.

WANT position as efficiency expert. Good experience in spinning and weaving mills. Can reduce production costs. No. 4449.

WANT position as master mechanic in small or medium sized mill. Electrical drive preferred. References. No. 4450.

WANT position as superintendent or overseer spinning and twisting. First class references as to ability and character. No. 4451.

WANT position as carder and spinner. Eight years as overseer. Age 35, sober and can give good references. No. 4453.

WANT position as carder, or carder and spinner. Prefer Georgia or the Carolinas. Can handle superintendent's job in small plant. Best of references. No. 4454.

WANT position as carder and spinner. Experienced in both rooms. Now employed. Fine references. No. 4454.

WANT position as overseer spinning. New employed, but wish larger room. Have held present place two years; 8 years as overseer. Age 30, good references. No. 4456.

WANT position as overseer weaving. Eight years on tire fabrics, 4 years on cords. Would consider good place as second hand. References. No. 4457.

WANT position as superintendent. Two years as superintendent. 12 years as overseer carding and spinning. Have taken textile course. Would consider place as overseer. References. No. 4458.

WANT position as superintendent of medium sized yarn mill, or carder and spinner. Long experience on both fine and coarse work. No. 4459.

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T. C. Entwistle Co.  
Saco-Lowell Shops.
- Beam Heads—**  
T. C. Entwistle Co.  
Mossberg Pressed Steel Corp.
- Saco-Lowell Shops.**
- Beams (All Steel)—**  
T. C. Entwistle Co.  
Mossberg Pressed Steel Corp.
- Saco-Lowell Shops.**
- Beaming Combs—**  
T. C. Entwistle Co.  
Easton & Burnham Machine Co.
- Steel Heddle Mfg. Co.**
- Bearings (Roller)—**  
Hyatt Roller Bearing Co.
- Bearings (Shaft)—**  
Fafnir Bearing Co.  
Hyatt Roller Bearing Co.  
William Sellers & Co., Inc.  
Woods, T. B. & Sons Co.
- Bearings (Textile Machinery)—**  
Fafnir Bearing Co.  
Hyatt Roller Bearing Co.
- Belt Conveyors—**  
Link-Belt Co.
- Belt Tighteners—**  
Link-Belt Co.  
Woods, T. B. & Sons Co.
- Belting—**  
Charlotte Leather Belting Co.  
Chicago Belting Co.  
Druid Oak Belting Co.  
Slip-Not Belting Corp.  
Graton & Knight Mfg. Co.  
E. F. Houghton & Co.  
Edward R. Ladew Co.
- Belt Cement—**  
Chicago Belting Co.  
Edward R. Ladew Co.  
Graton & Knight Mfg. Co.  
E. F. Houghton & Co.
- Belt Lacing—**  
Chicago Belting Co.  
Edward R. Ladew Co.  
E. F. Houghton & Co.  
Graton & Knight Mfg. Co.
- Belting (Link)—**  
Link-Belt Co.
- Bicarbonate of Soda—**  
Mathieson Alkali Works, Inc.
- Bleacheries—**  
Joseph Bancroft & Sons Co.  
Sayles Finishing Plants, Inc.
- Bleaching Materials—**  
Arabol Mfg. Co.  
Arnold, Hoffman & Co., Inc.  
Borne, Scrymser Co.  
Bosson & Lane.  
J. B. Ford Co.
- National Aniline & Chemical Co.**
- Roessler & Hasselacher Chem. Co.**
- United Chemical Products Co.**
- Wolf, Jacques & Co.**
- Bobbin Holders—**  
Fournier & Lemoine.
- Bobbins and Spools—**  
David Brown Co.  
Diamond State Fibre Co.  
Courtney, The Dana S. Co.  
Draper Corporation.  
Jordan Mfg. Co.  
Lestershire Spool & Mfg. Co.  
Lowell Shuttle Co.  
Mossberg Pressed Steel Corp.  
Walter L. Parker Co.  
Steel Heddle Mfg. Co.  
—See also Spools and Bobbins.
- Bobbin Saving Treatment—**  
The Textilac Co.
- Boxes—**  
Wilts Veneer Co.
- Box Shooks—**  
Wilts Veneer Co.
- Blowers and Blower Systems—**  
Carrier Engineering Co.  
Parks-Cramer Co.
- Breton Mineral Oil—**  
Borne, Scrymser Co.
- Brushes—**  
Atlanta Brush Co.  
Curtis & Marble Machine Co.
- Brushing Machines—**  
Curtis & Marble Machine Co.
- Bobbin Stripper—**  
Terrell Machine Co.
- Calenders—**  
H. W. Butterworth & Sons Co.  
B. F. Perkins & Son, Inc.
- Calendar Roll Grinders—**  
B. S. Roy & Son Co.
- Calendar Rolls—**  
B. F. Perkins & Son, Inc.
- Cards—**  
Woonsocket Machine & Press Co., Inc.  
Saco-Lowell Shops.  
Whitin Machine Works.
- Card Clothing—**  
Ashworth Bros.  
Charlotte Mfg. Co.  
Howard Bros. Mfg. Co.
- Card Grinding Machinery—**  
Easton & Burnham Machine Co.
- Dronfield Bros.**
- T. C. Entwistle Co.**
- Roy & Son Co., B. S.**
- Saco-Lowell Shops.**
- Whitin Machine Works.**
- Woonsocket Machine & Press Co., Inc.**
- Carrier Aprons—**  
Link-Belt Co.
- Caustic Soda—**  
Arnold, Hoffman & Co., Inc.  
Mathieson Alkali Works, Inc.
- Chain Belts and Drives—**  
Link-Belt Co.  
Morse Chain Co.
- Chemicals—**  
Borne, Scrymser Co.  
J. B. Ford Co.  
Hart Products Corp.  
Mathieson Alkali Works, Inc.  
Seydel Chemical Co.  
Seydel-Thomas Co.
- Cloth Pliers—**  
B. F. Perkins & Son, Inc.
- Cloth Presses—**  
Economy Baler Co.
- Clutches (Friction)—**  
Wood's T. B. Sons Co.
- Cloth Winders and Doublers—**  
Curtis & Marble Machine Co.
- Clutch Spindles—**  
Fournier & Lemoine.
- Coal Handling Machinery—**  
Link-Belt Co.
- Combs—**  
Steel Heddle Mfg. Co.
- Combs (Beamers, Warpers, Slashers)—**  
T. C. Entwistle Co.  
Easton & Burnham Machine Co.
- Commission Merchants—**  
Catlin & Co.  
J. H. Lane & Co.  
Mauney-Steel Co.  
Paulson, Linkroum & Co.  
Ridley, Watts & Co.  
The Farish Co.
- Compressors (Air)—**  
Allis-Chalmers Mfg. Co.
- Condensers—**  
Allis-Chalmers Mfg. Co.
- Conditioning Machines—**  
American Moistening Co.
- Conduit Fittings—**  
Chicago Fuse Mfg. Co.
- Cones (Paper)—**  
Sonoco Products Co.
- Cone Vice Couplings—**  
William Sellers & Co., Inc.
- Conveying Systems—**  
Link-Belt Co.
- Coolers (Air)—**  
—See Humidifying Apparatus.
- Cotton—**  
Jackson, Hill & Co.  
Lesser-Goldman Cotton Co.  
Lineberger Bros.  
Sanders, Orr & Co.  
Stewart Bros. Cotton Co.  
S. B. Tanner, Jr.  
Wm. & York Wilson.
- Cotton Machinery—**  
Ashworth Bros.  
Barber-Colman Co.  
Collins Bros. Machine Co.  
Crompton & Knowles Loom Works.  
Dixon Lubricating Saddle Co.  
Draper Corporation.  
Fales & Jenks Machine Co.  
H. & B. American Machine, Inc.  
T. C. Entwistle Co.  
Hopdale Mfg. Co.  
Metallic Drawing Roll Co.  
National Ring Traveler Co.  
Roy & Son, B. S.  
Easton & Burnham Machine Co.  
Saco-Lowell Shops.
- Stafford Co., The**
- Universal Winding Co.**
- Whitin Machine Works.**
- Whitinsville Spinning Ring Co.**
- Tolhurst Machine Works.**
- Terrell Machine Co.**
- Woonsocket Machine & Press Co., Inc.**
- Cotton Openers and Lappers—**  
Saco-Lowell Shops.  
Whitin Machine Works.  
Woonsocket Machine & Press Co., Inc.
- Cotton Softeners—**  
Arabol Mfg. Co.  
Arnold, Hoffman & Co., Inc.  
Borne, Scrymser Co.  
Bosson & Lane.  
Hart Products Corp.  
E. F. Houghton & Co.  
Seydel Chemical Co.  
Seydel-Thomas Co.  
Wolf, Jacques & Co.
- Cotton Waste Machinery—**  
Woonsocket Machine & Press Co., Inc.  
Saco-Lowell Shops.  
Whitin Machine Works.
- Counters (Revolution, Hank, Pick, etc)—**  
The Root Co.
- Couplings (Shaft)—**  
William Sellers & Co., Inc.  
Wood's T. B. Sons Co.
- Cranes—**  
Link-Belt Co.
- Dobby Chain—**  
Crompton & Knowles Loom Works.  
Rice Dobby Chain Co.
- Doffing Boxes—**  
Rogers Fibre Co.
- Doublers—**  
Saco-Lowell Shops.  
Universal Winding Co.
- Drawing Rolls—**  
Metallic Drawing Roll Co.
- Dring Fountains—**  
Puro Sanitary Drinking Fountain Co.
- Drives (Silent Chain)—**  
Link-Belt Co.  
Morse Chain Co.
- Drop Wires—**  
Crompton & Knowles Loom Works.  
Draper Corporation.  
Hopdale Mfg. Co.  
Mossberg Pressed Steel Corp.  
R. I. Warp Stop Equipment Co.
- Dryers (Centrifugal)—**  
American Laundry Machinery Co.  
Roy & Son Co., B. S.  
Tolhurst Machine Works.
- Dyeing, Drying, Bleaching and Finishing Machinery—**  
Cocker Machinery & Foundry Co.  
American Laundry Machinery Co.  
H. W. Butterworth & Sons Co.  
Franklin Process Co.  
Klauder-Weldon Dye Machinery Co.  
Perkins, B. F. & Sons, Inc.
- Dyestuffs and Chemicals—**  
Borne, Scrymser Co.  
Bosson & Lane.  
E. I. du Pont de Nemours & Co., Inc.  
Metz, H. A. & Co.  
Roessler & Hasselacher Chemical Co.  
National Aniline & Chemical Co.  
United Chemical Products Co.  
Wolf, Jacques & Co.
- Dye Works—**  
Franklin Process Co.  
Sayles Finishing Plants, Inc.  
Eclipse Van Ness Dyeing Machine—  
Eclipse Textile Devices, Inc.
- Electric Fans—**  
Allis-Chalmers Mfg. Co.  
General Electric Co.  
Westinghouse Electric & Mfg. Co.
- Electric Hoists—**  
Allis-Chalmers Mfg. Co.  
Link-Belt Co.
- Electric Lighting—**  
Allis-Chalmers Mfg. Co.  
General Electric Co.  
Westinghouse Electric & Mfg. Co.
- Electric Motors—**  
Allis-Chalmers Mfg. Co.  
Fairbanks-Morse Co.  
General Electric Co.  
Westinghouse Electric & Mfg. Co.
- Electric Supplies—**  
Chicago Fuse Mfg. Co.  
Cooper-Hewitt Electric Co.  
General Electric Co.  
Westinghouse Electric & Mfg. Co.
- Elevators—**  
Link-Belt Co.
- Engineers (Mill)—**  
—See Architects and Mill Engineers.
- Engineers (Ventilating)—**  
Bahnsen Co.  
Parks-Cramer Co.
- Engines (Steam, Oil, Gas, Pumping)—**  
Allis-Chalmers Mfg. Co.  
Fairbanks, Morse & Co.  
Sydnor Pump & Well Co.  
—See also Ventilating Apparatus.
- Expert Textile Mechanic—**  
J. D. Hollingsworth.
- Extractors—**  
American Laundry Machine Co.  
Tolhurst Machine Works.
- Fences (Iron and Wire)—**  
Cyclone Fence Co.  
Page Fence and Wire Products Assn.
- Fibre Specialties—**  
Diamond State Fibre Co.
- Finishers—**  
Sayles Finishing Plants, Inc.
- Finishing Compounds—**  
Arnold, Hoffman & Co., Inc.  
Borne, Scrymser Co.  
Hart Products Corp.  
Seydel-Thomas Co.
- Finishing Machinery—**  
B. F. Perkins & Son, Inc.
- Finishing Machinery—**  
—See Dyeing, Drying, Bleaching and Finishing.
- Fire Insurance—**  
Firemen's Mutual Insurance Co.
- Fiat Wall Paint—**  
E. I. du Pont de Nemours & Co., Inc.
- Floor Stands—**  
Wood's T. B. Sons Co.
- Fluted Rolls—**  
Collins Bros. Machine Co.  
Fales & Jenks Machine Co.  
Woonsocket Machine & Press Co., Inc.  
Whitin Machine Works.
- Flyer Pressers and Overhaulers—**  
Southern Spindle & Flyer Co.  
Whitin Machine Works.
- Woonsocket Machine & Press Co., Inc.**
- Flyers—**  
Saco-Lowell Shops.  
Southern Spindle & Flyer Co.  
Whitin Machine Works.
- Frames—**  
Steel Heddle Mfg. Co.
- Friction Clutches—**  
Wood's T. B. Sons Co.  
See Clutches.
- Fuses—**  
Chicago Fuse Mfg. Co.
- Gearing (Silent Flexible)—**  
Link-Belt Co.
- Gears—**  
Dan Gear Co.  
Ferguson Gear Co.
- Gears-Silent—**  
Diamond State Fibre Co.
- Gear Makers—**  
Dan Gear Co.  
Ferguson Gear Co.
- Grate Bars—**  
Thomas Grate Bar Co.
- Grab Buckets—**  
Link-Belt Co.
- Greases—**  
N. Y. & N. J. Lubricant Co.
- Grinding and Polishing Machines—**  
Easton & Burnham Machine Co.  
Roy, B. S. & Son Co.
- Hangers (Ball and Socket)—**  
William Sellers & Co., Inc.
- Hangers (Shaft)—**  
Fafnir Bearing Co.  
Hyatt Roller Bearing Co.  
William Sellers & Co., Inc.  
Wood's T. B. & Sons Co.
- Hardware Supplies—**  
Textile Mill Supply Co.
- Harness Twine—**  
Garland Mfg. Co.
- Harness and Frames—**  
—See Heddles and Frames.
- Heddles and Frames—**  
Garland Mfg. Co.  
Steel Heddle Mfg. Co.  
L. S. Watson Mfg. Co.
- Hopper-Feed Hand Stokers—**  
The J. H. Williams Co.
- Hosiery Dyeing Machinery—**  
American Laundry Machinery Co.  
Cocker Machinery & Foundry Co.
- Humidity and Air Conditioning Apparatus—**  
American Moistening Co.  
The Bahnsen Co.  
Carrier Engineering Co.  
Parks-Cramer Co.
- Humidity Controller—**  
American Moistening Co.  
The Bahnsen Co.  
Carrier Engineering Corp.  
Parks-Cramer Co.
- Hydro-Extractors—**  
American Laundry Machinery Co.  
Tolhurst Machine Co.
- Indigo Dyeing Machinery—**  
H. W. Butterworth & Sons Co.  
Cocker Machine & Foundry Co.
- Insurance—**  
Firemen's Mutual Insurance Co.  
Liberty Mutual Insurance Co.
- Knitting Machinery—**  
Hepworth, John W. & Co.
- Knit Goods Finishing Machines—**  
Kaumagrap Co.  
Morrow Machine Co., The.
- Knotters—**  
Barber-Colman Co.  
Saco-Lowell Shops.  
American Laundry Machinery Co.
- Laundry Machinery—**  
Tolhurst Machine Works.
- Landscapes Architect—**  
E. S. Draper.